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# The Application of the new Law of the Sea Convention in fisheries regimes: implications for ... Namibia

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# THE APPLICATION OF THE NEW LAW OF THE SEA CONVENTION IN FISHERIES REGIMES.IMPLICATIONS FOR THE MARITIME ADMINISTRATION IN NAMIBIA.

BY

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To my daughters
Indira and Ruscienda

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CERTIFICATION

I certify that all the materials in this dissertation which is not my own work has been identified and that no material is included for which a degree has been previously confered on me.

The contents of the dissertation reflect my personal views and are not necesserily endorsed by the University or my employers.

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# ABSTRACT

The purpose of this paper is to present the oppertunities and challenges posed by the new (1982) Law of the Sea Convention. Even though the convention has not yet entered into force the application of the convention provisions on extended jurisdiction granted to coastal states has become customary in its application and thus of international legal practice. This paper aims to present the issues and the factors involved for the successful application and extracted benefits of this new oceans regime as applicable in fisheries. More specifically this paper aims to show that the Namibian fisheries administration is in a unique position through it's recently acquired independence in March 1990 to learn from practical applications and some of the problems raised for fisheries administrations.

Namibia is in the unique position in so much as it can , to a certian extent start afresh and try to avoid the mistakes made in other developing countries by developing a maritime fishery administration that can benefit the Namibian population in real terms as envisaged by the original proponents of the convention both for improved management and a just and equitable distribution of living marine resources.

# CHAPTER 1

## INTRODUCTION

The U.N.Convention on the Law of the Sea was signed by 119 countries in Montego Bay, Jamaica on 10 December 1982. Despite the failure to reach consensus on the whole of the convention the fisheries provision of the earlier 1975 Negotiated Text has remained largely unchanged. Central to these provisions on fisheries is the concept of extended coastal jurisdiction in terms of which all the natural living or non living resources in an exclusive economic zone extending beyond and including the territorial sea for a distance of 200 mile seawards falls within the jurisdiction of the coastal state. This extended jurisdiction, however consists of both rights and duties. The coastal state has the responsibility for fisheries management within the zone, power of regulation of access to the living resources dependent on the availability and a declared surplus as well as the coastal state's own capacity to harvest the resource.

Despite the fact that the convention has not yet entered into force (12 months after deposit of the 60 th instrument of ratification or accession) its extended coastal state jurisdiction provisions have been implemented by coastal states world wide. It has become accepted international practice and can be regarded as residing under customary international law.

Namibia ratified the Law of the Sea Convention on 18 April 1983 (the fifth state to do so) and therefore there is a real obligation on the Namibian state to implement the provisions of the Convention in the management of it's ocean territory and resources.

The purpose of this paper is to consider the various issues and problems which have evolved in the application of the convention as regards the regime of fisheries. Issues, problems and experiences in the implementation of schemes for fisheries resource management, regulations, allocation and control over access to foreign vessels and enforcement will be discussed hereunder.

This paper will furthermore try to relate these issues and problems to Namibia and the sequence will be as follows; a) Part I. Chapter 1 will briefly provide a historical background to the Namibian fisheries. b) Part II Chapters 2 to 5 will deal with specific issues for consideration generally under a fisheries regime. c) Part III Chapter 6 will try to relate the above issues to Namibia for consideration in fisheries development.

**GENERAL.**

**1) HISTORICAL BACKGROUND.**

After the first World War, Namibia was administered by South-Africa under a C-Mandate of the League of Nations on behalf of Britain. The mandate to South-Africa included certain obligations namely the promotion of the material and

moral well-being and social progress of all the people of the territory. However South-Africa sought instead to annex the territory as a fifth South-Africa province and continued to exploit it's natural and human resources. South-Africa furthermore extended it's apartheid and Bantustan policies into the territory.

As far back as 1946 South-Africa proposed to the U.N General Assembly to incorporate the territory into the Union of South Africa This proposal was rejected and the U.N.General Assembly recommended instead that the territory be placed under the International Trusteeship system. In 1966 the U.N.G.A resolved in resolution 2145(XX1) that the South-African administration be terminated. South-Africa however refused to acknowledge the U.N jurisdiction over the territory arguing that since the mandate was granted under the League of Nations the U.N had no jurisdiction to decide over the territory. South-Africa continued to defy the U.N. and in 1971 the continued occupation of Namibia was declared illegal by the International Court of Justice. The U.N.G.A furthermore established the U.N.Council for Namibia in Resolution 2248 (S-V) of 19 May 1967 to administer and secure independence for the territory from South-Africa .Despite these efforts South-Africa continued it's illegal occupation of Namibia in defiance of the international community. Through various legal and diplomatic manouvering South-Africa allies continued to occupy Namibia and even stepped up it's exploitation of the natural and human resources of the country, applied it's abhorrent policies of apartheid(racial fragmentation) and bantustanization dividing the country along social, economic and racial lines.

South-African colonial policies and operations in Namibia was based on the maximum exploitation of the natural resources and the externalization of the wealth generated there. The consequence of this continued and accelerated plunder of the natural resources is evident in the overmining overfishing and environmental degradation which took place at the time. It thus remained a profitable colonialisation and hence the reluctance on the part of South-Africa to grant independence to the territory. South-Africa and it's allies predominantly Britain and the U.S.A. had a vested interest in the continued exploitation of Namibia's rich mineral and fish resources. Namibia furthermore developed a lopsided economy along selective sectoral concentration with emphasis on mining and fishing, whereas the agricultural and manufacturing sectors remained virtually non existent. The Namibian economy and infrastructure was developed in such a manner that it continued to serve South-African interest. The Namibian economy remains to date dependent on the import of food and other manufactured goods from South-African . The Namibian economy will therefore continue to remain heavily dependent on South-African imports for the foreseeable future. Mining presently forms approximately 50% of the total GNP.(1) Due to various factors such as the "the abundance of relatively easy to work rich ore bodies, the proximity of the South-African economy, the near absence of many strategic minerals in South-Africa and a captive cheap labour market because of apartheid policies."(2) It paid South-Africa to concentrate on mining in Namibia. "As a result of the lopsided economy and development, the country today produces goods which are not used in the country and consumes goods which are not domestically produced".(3)

Namibia has since gained independence from South-Africa on 21 March 1990 through a western powers brokered agreement with South-Africa and implemented jointly by the U.N and South-Africa. The new government and the people of Namibia thus inherited many economic and social problems with independence. New innovative development plans, policies and programs need to be adopted to reverse the lopsided economy and social inadequacies. Economic reform and development should thus be geared and implemented towards agricultural and manufacturing capability and self-reliance. Development is however presently hampered by factors such as the world recession in raw materials and the lack of long term raw material export contracts due to the existence of sanctions against South-Africa and consequently Namibia at the time and these contract have since expired and never renewed since independence. Social inequalities in areas such as health, education, training and housing should be high priorities and eradicated as soon as possible.

The fishing industry in Namibia can contribute significantly towards economic growth and social parity if properly and efficiently planned and managed. The fishing industry can furthermore provide employment and a source of foreign exchange if developed towards processing and manufacturing capability.

Various aspects of the fishing industry will hence be discussed due to the past and future importance of the sector.

## 2) TYPES OF FISH STOCKS

Within the Namibian EEZ there are two main types of fish stocks namely those that are grouped as inshore pelagic fish such as Clupeid, Pilchard, and anchovy and those further offshore, pelagic stocks of mainly Horse Mackerel, Chub Mackerel and the valuable demersal species of Hake. The latter is distributed throughout the whole water column with its largest distribution offshore but extending into shallower waters inshore ( the latter being mostly of the juvenile population). The inshore pelagic fisheries for pilchard is exploited mostly by the Namibian based purse seine fleet whereas the offshore trawling for hake and horse mackerel is being exploited by distant water fleets from a variety of nations. Prior to independence[4] and the declaration of an EEZ[5] the offshore trawling for the valuable hake and horse mackerel were under the management of the now defunct ICSEAF[6] which included areas of Angola and South-Africa. The inshore fisheries were at the time managed by the South-African administration in Windhoek.

Due to a lack of proper control, absence of surveys and due to mismanagement of the fisheries resources as well as the jurisdictional problems relating to the status of the country at the time[7] both inshore (almost exclusively by South African interest) and offshore pelagic and demersal stocks were heavily exploited by foreigners with little return to the Namibian population. This has led to a drastic decrease in the stocks between certain periods.[8] These two groups of fish stocks however constitute the main although not the only species of fish stocks within the Namibian waters. Main species in this sense referring to its biomass,

economic exploitability and value. The state of these inshore and offshore fish stocks shows an alarming decline in the biomass before and after the period of 1980 in terms of both TAC's and recorded statistics of landings.(9)

In addition to the abovementioned types of fish there are a number of less abundant fish and shellfish. Although there are also others, only the better known and economically significant types are named here namely snoek, kingklip, sole, monkfish, squid, deep sea crabs and rock lobsters, the latter being exported mostly to Japan and the U.S.A. In this group of other pelagic fish stock snoek, a large predatory species of horse mackerel is by far the most important as to it's economic value and abundance. The latter are exploited mostly by longline and trawl vessels.

As this paper does not purport to offer extensive knowledge in the fishery science information the stocks are briefly mentioned here only for the sake of completeness (See Annex I).

## 3) EARLY EXPLOITATION AND PRE-INDEPENDENCE DESTRUCTION OF THE FISHING RESOURCES.

As access to information on this subject matter has been rather limited this section refers specifically only to the destruction of the pilchard (inshore) and hake and horse mackerel (offshore)

**A) The destruction of the pilchards.**

The spectacular rise in the pelagic fish processing in the mid 1940's, together with the fall of the Californian sardine (1946-1952) and the consequent redundancy of machinery and equipment gave rise to the mushrooming of canneries and fishmeal plants in the Cape and subsequently to Namibia. Transfer of such machinery and equipment from the U.S.A to the Cape together with an already existing market to supply in South-Africa and elsewhere led to a rush for factory licenses in Namibia.

The abovementioned factors led to an increase in the number of vessels which competed tremendously to land as large a volume of fish as possible to such an extent that the factories were periodically swamped with raw fish.(10) The overlarge fleet and the extremely efficient and thus wasteful gear employed led to tremendous waste as only the most valuable species were actually landed while the less valuable were discarded. This state of affairs in conjunction with the collapse of the Californian sardine led the then South West African Administration to adopt and promulgate the Seal and Fisheries Ordinance in 1949. However, as this Ordinance merely restricted the number and processing capacity of the factories the South West African - Administration introduced during the periods 1952-1964 further control measures. These measures which included among others, the banning of any further expansion of the number and capacity of the licensed factories, limiting the number and gross tonnage of the fishing boats supplying each factory and introducing quotas for each factory thus limiting the intake of raw fish for processing per factory.(11) These

measures were effective in terms of increased processing efficiency, the reduction of the purse seiner fleet and controlled fishing programmes. These restrictions however led to the quotas being filled within a short period and the subsequent under utilization of the expensive factory machinery and vessels.

The dominant positions occupied by the representatives of the factories in the Fisheries Development Advisory Board[12] and their influence on the administration in the 1959-1964 period led to an ever increasing annual quota allocation and even mid-season quotas were granted, bearing in mind that the inshore stocks were still controlled by South-Africa. The overall quotas trebled within 5 years between the years 1960 - 1964 leading to increased processing capacity for both canneries and reduction plants.[13]

By the year 1966 the factories, not yet satisfied once more demanded increased quotas as they claimed that the existing quotas limited their production capacity to a mere 60%[14]. Furthermore some companies blocked by the administration from allowing more processing capacity on land moved outside the 22 kilometer coastal limit over which the then administration had no jurisdiction.[15] The companies also introduced factory vessels to operate outside the 22 km limit from bases in South Africa. This led to open conflict between the SWA - administration and the Cape provincial authorities. But, as these factory vessels were operating outside the 22 kilometer limits and thus outside it's jurisdiction, the SWA-administration was helpless and as countermeasures further increased the domestic fleet capacity through higher quota allocations. With the total lack of any

form of constraint these factory vessels slaughtered the pilchards through excessive catches depleting the adult biomass to almost half. By the late 1970's the pilchard landings dropped to almost 40% within 2 years.[16] Quotas were henceforth (about 1971) split between pilchards and other species and for the first time the inshore fishing fleet increased their "other species" catches of anchovy and horse mackerel. However by 1972 - 1974 the adult pilchard stock had doubled and this trend continued mainly due to favorable environmental conditions. This led to the false assumption of a recovered stock and an increase in quotas of approximately 500,000 tons in 1974. In the meantime the pelagic fish industry at the height of it's prosperity in 1974 already contributed significantly to the GNP, approximately 10%, and 15% of total exports. This was complimented by increased western demand, the subsequent canning boom (a labour intensive industry) in the same period (1974) and it's resultant employment opportunities.

The canning boom was however shortlived as it was based on the false assumption that the stock would continue to recover to it's 1972/1974 peak. The absence of proper surveys and the small number of juvenile stock were surely to lead to a collapse in the industry in the same way as the Californian, sardine and this were already evident when in 1976 the absence of pilchards amongst the catches were obvious. Subsequent surveys revealed the depletion of the stock but the authorities failed to close the factories and merely reduced the quotas which remained unfilled at 200,000 tons in 1977. In 1978 the season was closed after only 46,000 were caught in a period of 3-4 months. Since 1978 the adult

stock continued to be estimated at under 100,000 tonnes less than 2% of the 1968 biomass.[17]

Catch quotas were subsequently introduced ranging between 30,000 tonnes and 35,000 tonnes between 1982/1983. These reduced quotas were in fact far in excess of scientific recommendations for a maximum of at least 20,000 as a 1982 survey[18] already showed that the central population had not recovered at all. In order to keep up production of fishmeal the factories now turned to catching anchovies, depleting their population from an estimated biomass of 750,000 tonnes (1960) to between 40,000 and 150,000 tonnes in 1974.

The declining catches led to a reduction in the fleets and the collapse of the inshore cannery industry and resultant mass unemployment.[19] By the end of 1983 only four out of nine factories remained operational and at reduced capacity.[20]

**B) The offshore hake and horse mackerel.**

The offshore stocks were administered and managed by ISCEAF.[21] The major offshore species, mainly hake, horse mackerel and to a lesser degree high valued sole, were caught mainly by foreign deep sea trawlers from the former Soviet Union, Poland and Spain. But by the mid 1960's they were caught to an increasing degree by South Africa. It was estimated that the offshore foreign fleet consisted of as many as 100 vessels flying more than 15 different flags by 1970 and in the peak year of 1978 a total of 172 foreign trawlers were reported off the Namibian coast including 29 factory vessels. These catches, numbering about an estimated

60,000 tonnes in 1963, rose to approximately 500,000 tonnes in 1965 and to an all time peak of approximately 1.5 million tonnes in 1978. By as early as 1970 the catches from these foreign vessels already matched those of the inshore pelagic catches and since the collapse of the inshore pelagic industry contributed more than three quarters of the total catches in the Namibian waters.(22)

At this stage the inshore factory fleet's participation in the offshore fishing was negligible as the white fish caught offshore were from the viewpoint of the inshore industry unsuitable for canning. The failure of the Namibian and South African based industries to exploit the offshore stocks can furthermore be contributed to the following factors.

(1) The offshore pelagic fish, especially the horse mackerel, is not a suitable species for canning although it is good for meal and oil due to it's mid water habitat.

(2) The mid-water habitat of this species needs larger more sophisticated and consequently expensive vessels for more efficient large scale catching. By the mid 1970's there were at least 24 factory vessels, mostly of Soviet origin, as well as approximately 100 plus fishing vessels exploiting the offshore pelagic species and horse mackerel as well as other species such as hake and sole.

(3) South African and Namibian interest were unable to compete with these foreign vessels from technologically advanced and economically rich countries.

(4) Also the demand for fresh and frozen white fish was negligible in Namibia and limited in South Africa as local human consumption especially in Namibia has never been very high.

(5) Lastly, the emergence of large freezer trawlers (foreign) making long distance fishing for white fish more efficient and economically viable, as well as an increase in South-African consumption and declining stocks closer inshore were also contributing factors in the stock decline.

Increasing hake fishing activity in the mid 1960-1970's mostly by the Spanish, was soon joined by the Soviets on a large scale. By 1968, and between 1968 and 1972, hake made up approximately 90% of the total long distance trawler catch. The decline of the hake stock was soon evident with increased effort to maintain high catches and these foreign vessels turned their attention to other types of fish mainly horse mackerel. The Soviets especially fished at all depths and indiscriminately for pilchards nearer the surface, horse mackerel in mid water and hake at the bottom. The hake stocks were thus severely depleted by the 1980's with the lowest catches since 1965 in that year. The horse mackerel suffered a similar fate due to the increased recruitment and the absence of competition from the already depleted hake and pilchard stocks. Although the offshore fishing effort remains essentially a two species fishery, attention was soon

diverted to other types of fish such as snoek and chub mackerel. As early as 1977-1978, the occasional long line tuna fishing vessels and the deep sea crab vessels were seen off the southern coast .[23]

It is therefore evident that the Namibian fish resources have been severely exploited and depleted over the past 20 years due to indiscriminate overfishing, lack of control and jurisdiction by Namibian nationals with little if any return of value to the rightful owners, namely the Namibian people. The value of these exploited resources, over the period of more than twenty years, in monetary term can only be described as astronomical and is estimated to run into billions of dollars. Valuable income was lost for the indigenous Namibian people who are now saddled with the problems and enormous task of recovery through control and conservation.

**4) OVERFISHING-WHY IT HAPPENED.**

Various factors may be regarded as having contributed directly or indirectly to past overfishing and the consequent depletion of the marine living resources (fish stocks) within the Namibian waters. The main reasons could be briefly summarized as the following but not limited thereto with specific reference to the Namibian situation.

A) Namibia has for many years been colonized mainly by South-Africa and administered as if it was a fifth province of that country. South-Africa built an infrastructure into the Namibian territory, geared

towards the industry of South-Africa, colonial self interest and the question as to jurisdiction over the country contributed to the plundering on a free for all basis of the Namibian fish resources.

B) Advanced technology in the exploitation of the fish resources e.g., larger more efficient vessels, factory vessels with processing capabilities and increasing fleet capacity, contributed to the overexploitation within the Namibian waters.

C) The demands of the economics of scale required large investment with increasing production capacity.

D) The philosophies of competition versus conservation saw the latter ignored by those who would benefit most from it in the long term such as the factory owners and the fisherman themselves. This attitude is displayed in the thinking of, "If i do not catch enough and fill my quota then someone else will".

E) Uncontrolled industrial fishing took place on a large scale with indiscriminate methods due to the question as to the Namibian territories international status prior to independence. Further, no one had jurisdiction at the time to declare a 200 nautical mile EEZ and the ICSEAF at the time only had limited terms of reference.

F) The absence of a constructive fisheries policy, limited control, efficient management and research.

G) The attitude of the exploiters of the fishery resources regarded it as an unlimited and unending self reproducing resource. The absence of research and education precluded the development of management techniques bearing in mind that the fisheries are a resource whose stock levels cannot be determined with absolute certainty.

H) Short term financial advantages of immediate commercial yield and the profit motive have been the priority.

## 5) PRESENT AND FUTURE FISHERIES POTENTIAL.

The facts indicate that the present state of the stocks are at an alarming low level, as to its biomass. The slow recovery of the stocks can be blamed almost exclusively on fishing methods with disregard for juvenile stocks and breeding grounds. Earlier indiscriminate and uncontrolled over-exploitation of the fish resources directly contributed to the present position and is more than a source of concern

As can be seen from the attached statistics in Annex V, both the inshore stocks for pilchards, red herring and anchovies etc. and the offshore stocks of hake, and horse mackerel has significantly dropped in terms of catches and landings of these stocks between the periods of 1960-1980 although the horse mackerel seem to be in a healthier state. The catches have dropped from 8.5 million tons per year in the years 1965-1967 to approximately 4.5 million tons per year in the years 1976-1983 for the inshore pilchards and

from 1.5 million tons in 1968 to 0.5 million tons in 1980 for the offshore hake. The figures are especially depressing as regards the dwindling stocks of hake. (See Annex IV & V). One must, however, bear in mind that the fishing for horse mackerel usually has a bycatch of hake.

The future potential for the fishing industry is entirely dependant on the priority given to this sector within the overall governmental plan. With the introduction of proper management and regulatory control measures in line with declared government policy[24] recovery of the fish stocks in general could be achieved over a long term period. (See attached annex of long term estimates) and maintained through an initial and intermediate period of conservative TAC,s and quotas. Working on the basis of these estimates and declared policy the potential for this sector in the future economic development of the country could indeed be significant and could eventually contribute to a large extent to the national economy.[25] The self generating spin-offs from a well managed fisheries sector could become of major importance in terms of employment, foreign currency earnings and the GNP as well as the per capita income of the country.

The future potential of the sector depends on the policies adopted by the present and future governments and people of Namibia. It is equally dependent upon the ability to implement such policies and the willingness to aim for long term goals instead of self defeating short term priorities of immediate financial gain. The priority granted to the sector within the overall development plan shall therefore surely determine its future potential. If given the priority it deserves and work towards stated objectives

proceeds its future potential could indeed be significant to the country not only as for its financial benefits but also for its national contribution as a source of food.

It is however a well fact that today's priorities are not necessarily tomorrow's as these change in relation to prevailing circumstances. The future development of other potential marine resources such as oil and gas[26] will to a large extend determine the future of the fisheries sector as to it's percentage contribution to the overall national economy. It is however recognized that a fishery can exist next to oil and gas exploration activities as for instance in the Gulf of Mexico.

## 6. THE NAMIBIAN EXCLUSIVE ECONOMIC ZONE.

### 1) Right's and duties under the EEZ.

In terms of article 56 and 58 of the Convention coastal states have rights as well as certain duties under it's EEZ. Article 56 grants the coastal state the right to "explore and exploit, conserving and managing the living and non living resources". Article 58 however limits the rights of the coastal state by granting other states certain rights within the EEZ of such coastal state such as the "right of navigation and overflight .... and other international uses of the sea". Article 62 however refers specifically to the utilization of the living resources and grants the coastal states the right to "determine it's capacity to harvest the living resources of the EEZ" but, "where the coastal state does not have the capacity to harvest the total allowable

catch, it shall through agreements or other arrangements and pursuant to the terms, conditions, laws.... give other states access to the surplus of the allowable catch."

One must however bear in mind that under UNCLOS 82 the EEZ can be regarded as a hybrid zone between the maritime zone and the territorial sovereignty (internal waters, territorial sea) and the maritime zones with a regime of freedom organized by international law (high seas, continental shelf) Within this zone the adjacent coastal state does not have the equivalent of territorial sovereignty but sovereign rights for the purposes of exploiting the resources of the EEZ. Because many countries regard the territorial sea and the 200 mile EEZ zones as part of the same regime for fisheries management purposes the territorial sea will be treated as inclusive when talking about fisheries and the right and duties within the EEZ of the coastal state under UNCLOS 3. However, one must bear in mind that some rights are exclusive such as the right to exploit the resources, that is economic activities directly using natural resources. E.g. protection of energy from water, wind or stream, artificial islands and platforms etc. But some rights are sometimes not exclusive such as fishing rights. The difference is the result of the fact that the competencies of the coastal states are specific as to their jurisdiction within their territorial waters (see article 65) whereas they are not specific but limited in the EEZ and the competencies therefore not exclusive. Article 73 sets out the limits of the EEZ subject to which the coastal state may enforce the laws and issue regulations governing the exercise of it's sovereign rights and it's jurisdiction in the EEZ. Article 73 in this regard grants the coastal state specific rights of

arrest, inspection of foreign vessels," as may be necessary to ensure compliance with the laws and regulations adopted by it in conformity with this convention." Article 63 para.3 however, accords certain rights to third states in relation to the non exclusive jurisdiction afforded such state in terms of the convention. All third states can have recognized rights in the EEZ of another country. This principle concerns especially states which have originally fished in the zone or which have made substantial efforts in research and identification of fish stocks. These rights of third states are however subject to the following.

(1) A surplus has to exist.

(2) This surplus is known when the coastal state does not have the capacity to harvest the total allowable catch.

These two factors are determined by the coastal state. In addition the third state needs an authorization by the coastal state as set out in Article 58, para 3. This article authorizes the coastal state to establish specific regulations regarding fishing rights such as license fees, quotas, and technical measures.

In terms of the above provisions and their interpretation the coastal state is given a certain flexibility in order to control fishing activity within it's EEZ. These provisions have therefore in this specific area of fisheries left the coastal state with a broad and general discretion in the exercise of it's powers in the EEZ. This discretion given to the coastal state can be utilized in it's own interest through legislation and management of the

resources. Third states with unproven track records and motives, to the detriment of the coastal state and the resources can be excluded by not granting to them access within the EEZ and thus the fishing grounds. This can be achieved through the implementation of legislative sanctions, e.g. non compliance with any agreement terms and conditions of access. This could be considered similar to a breach of the contract, resulting in the contract, license etc.being suspended.

The jurisdiction and discretion granted to the coastal state regarding it's fishing resources should therefore be implemented into national legislation to the benefit of such states. The policy and legislation of the coastal state as to it's fishing resources should be reflected in the access agreements and be favorable to such state. The position and overlapping EEZ of the Walvis Bay and the islands belonging to South Africa can be seen in the Annex II and its accompanying jurisdictional and enforcement problems clearly imagined. The enclave and islands limits the Namibian EEZ and cuts through it and can thus be exploited by countries fishing illegally in the territory.

## 2) The UN convention on the law of the sea and it's application.

As Namibia became independent on March 1990 and a new full member of the UN. it acceded to the convention on the law of the sea 1978. She declared an exclusive economic zone in term of the provisions of the convention by way of Act No. 3 of 1990 called the Territorial Sea and Exclusive Economic Zone of Namibia Act 1990. This was published in the

Government Gazette No.28 on 11 June 1990. This act enabled the Namibian government to extend it's sovereignty as a coastal state as defined in UNCLOS 82. Art.55 defines the EEZ in legal terms as adjacent to the territorial sea. From UNCLOS 82-article 55, "The EEZ is an area beyond and adjacent to the territorial sea..." but within this Zone the adjacent coastal state does not have the equivalent of territorial sovereignty. Article 58 para 1 keeps, "the freedom of navigation and overflight and of the laying of submarine cables and pipelines.." This disposition creates the difference between the territorial sea and the EEZ. Secondly the EEZ does not belong to the high seas. From UNCLOS 82 - article 86, the high seas is, "All parts of the sea that are not included in the EEZ, in the territorial sea or in the internal waters of the state, or in the archipelagic waters of an archipelagic state". The real nature of the EEZ however remains ambiguous because it is defined negatively in relation to the high seas and only by the adjacency with regard to the territorial sea. The EEZ can best be described as a hybrid zone between the territorial sea and the maritime zone (internal waters-territorial sea) and the maritime zones with a regime of freedom organized by the international law (high seas-continental shelf).

This extended jurisdiction over living and nonliving resources within the Namibian EEZ enabled Namibia to gain control over it's rights and duties within the jurisdiction afforded it in term of the concept of an EEZ. Before the declaration of an EEZ by an independent Namibian government it's rich fishery resources within the now declared EEZ were formerly regarded as part of the High Seas and severely exploited by foreign fishing vessels with no real return for

the country. The driving force behind the extended coastal jurisdiction in terms of the convention was the fisheries situation in third world countries. The rationale behind the extended jurisdiction was that these countries expected to receive particular advantages from extended coastal jurisdiction. "This is however not the case in reality due to the fact that their own resources were poorly exploited and there was strong competition from the technologically advanced fleets of industrialized countries."(27) Examples of this statement can be seen in the case of Mozambique and the Seychelles although to a lesser extent with regard to the latter. Namibia should therefore avoid making the same mistakes and learn from the experiences of other third world countries. The rights and duties accorded coastal states under the UNCLOS convention over their EEZ's should be more effectively and advantageously used by these countries in the granting of exploitation rights to foreign fleets.

The application of the law of the sea convention has however not had the intended result or changed the local situation in many African countries. Only some Latin American and South east Asian countries such as Chile, Mexico, South Korea and Thailand can be said to have shown significant increases in total catches as a result of the extended jurisdiction granted them under the convention. In Africa however the situation remains bleak and rather one of stagnation and reduction. Overall most coastal states have only shown moderate or insignificant growth. The law of the sea convention has however opened the possibility of affording coastal states increasing jurisdiction whereby they could grant fishing rights to foreign countries by concluding access agreements with companies of industrialized nations

thereby assuring guaranteed payments in exchange. This seems to be the general trend followed by the majority of coastal states especially in Africa. The main reasons for this development can be said to be the inability of these states to exploit the resources themselves, lack of financing and the fact that they are unable to compete with industrialized countries and to a certain extent for historical reasons where exploitation of the fishery resources is still done mostly by their former colonial masters. Access agreements are therefore a means for these countries to obtain at least some financial return on these fishing resources. Agreements in themselves are fine but most African countries lack the means of effectively enforcing the terms and conditions of such agreements. Most agreements have also been badly negotiated. The main effect of the extended jurisdiction for most developing countries has therefore been financial or some other form of compensation in exchange for fishing rights. Financial compensation in the form of foreign exchange was thus the main effect of the EEZ's on distribution for third world countries. Some Indian Ocean developing countries such as Mozambique and Seychelles are heavily dependent on their fisheries and have chosen a political policy which to a large extent involves foreign fishing. However these agreements have had little real returns for these two countries due to poor negotiation, lack of knowledge of the resources and noncompliance. This is especially true with regard to Mozambique as the Seychelles has had a certain measure of success in obtaining some indirect benefits.[28]

ENDNOTES.

CHAPTER 1

(1) "In recent years minerals have accounted for about 85 % of the total exports of the territory. Tax receipts from this source constitute about half of the estimated government revenue. Mineral sales includes uranium sales from Namibia amounted to R869.6 million in 1980." UN Institute for Namibia "Perspectives for National Reconstruction and Development."
1986 - 88.Chapter 8.p.292.

(2) Ibid. p.16.para.3

(3) Ibid.

(4) Namibian independence date was 21 March 1990.

(5) The Namibian EEZ was declared by way of Act 3 of 1990 called the Territorial Sea and Exclusive Economic Zone of Namibia Act 1990. Published in Government Gazette No. 28 on 11 June 1990.

(6) International Commission for the South East Atlantic Fisheries.

(7) Controvercy over jurisdiction of the then named South-West African/Namibian territory between the colonial power South-Africa and the U.N. The territory was administered by a minority of whites under Pretoria directives.

(8) See Annex II, III & IV for the decrease in the stocks

(9) See Annex II, III & IV for statistics of the period.

(10) Read. 1969, p159-60, 195-7. S.W.A Fisheries Industry Commission Report 1972.

(11) Read. 1969, p. 170-1 , 177-8; Fishing Industry Commission Report 1972. p 63-8.

(12) In 1953 the Walvis Bay factory managers formed the Fish Factories Executive Commitee ( FFEC ) to represent their interest with the then S.W.A Administration. The company delegates under the ( FFEC ) dominated the official S.W.A Fisheries Development Advisory Board ( FDAB ).

(13) New quotas in the period 1960 - 4 were increased annually in a series of steps which were regarded as temporary and mid-season quotas increases were also granted 15 % in 1959 and 11 % in 1963.

(14)Read 1969. p.259.

(15)"The South African Territorial Waters Act of 1963 decreed an extension of the South African and Namibian territorial waters from 3 to 6 miles, with another 6 sea miles as an exclusive economic zone- making a total of 22 kilometers." See. Moorsom. p.22 footnote 18.

(16)A crash research program survey in 1970 revealed that the pilchard population had been reduced to three quarters within 3 years to a biomass of only 1.5 million tonnes and only then did the authorities take action.

(17)Stock assessments in ICSEAF CSP 1979-1982 and Thomas 1982, Tables 8-10.

(18)Thomas 1982.

(19)Moorsom 1984 ; WA,NT passim.

(20)Fishing Industry Handbook 1982-1983 p. 11, 13, 15.

(21)ICSEAF-International Commission for the Southeast Atlantic Fisheries. See Map 1 for area of competence.

(22)Fishing Industry Commission 1972.p 115-116; Read 1969, p.256-8; WA 18 November 1980.

(23)Mostly in the Southern coastal area of Luderitz where the Namibian deep sea crab and lobster fishery is situated.

(24)See Government White Paperon the National Fisheries Policy for the Republic of Namibia.Windhoek.June 1991.

(25)"The landed value of the annual catches in the late 1980's was around R500 million. It is however possible if this trend continue and value is added through processing in Namibia" See Government White Paper.June 1991 p.18.

(26)Potential gas and oil exploration lots have recently been demarcaded off the Namibian coast by the Namibian government and exploration licences allocated to various international consortia.

(27)See May-Kirstin Ensrund. Forthcoming Research Report from the Fridtjof Namen Institute. Futher see also Chapter 4 (C) p.69.

(28)See also Chapter 4.

# CHAPTER 2

## FISHERIES RESOURCE MANAGEMENT

The Law of the Sea Convention not only granted extended rights in the declaration of a 200 mile EEZ but also certain duties and responsibilities. In Part V of the Convention , Article 61 refers specifically to the duties of the coastal states to conserve the living marine living resources. Briefly the Article states that the coastal state shall:

(1) Determine the allowable catch of the living marine resources in the EEZ;

(2) Apply conservation and management measures for the maintenance of the living resources;

(3) That such measures be designed to maintain or restore populations of harvested species at levels which can produce the maximum sustainable yield;

(4) Such measures shall ensure that populations of harvested species be maintained at reproductive levels; and

(5) the dissemination of information and data relevant to the conservation of fish stocks.

In a paper, "Options for the Management of Tuna fisheries in the Indian Ocean", W.T.Burke and Francis T. Christy Jr. state that, "In open access fisheries the benefits and cost of management generally accrue to different parties. Unless specific arrangements are made, the private sector receives the benefits in the form of higher catches per unit of effort

(and higher average incomes) while the public sector tends to bear the full cost of implementing the management measures". This statement is essentially true also in the case of a fishery that is almost entirely commercial in nature such as the Namibian fishing industry. This responsibility to bear the cost of implementing conservation measures through management of the living resources within the Namibian EEZ therefore lies with the Namibian government. The Namibian government can therefore be regarded as the owners of the fish resources and as the principle who aims to achieve the maximum net benefit from the fishery. The function of government can be described as analogous to that of owners of other resources where effective property rights are in place such as e.g. agriculture.

In resource management especially those of fisheries, there are three main management functions:

a) Information acquisition and dissemination;
b) Control over production and the inputs of capital and labour-regulation; and
c) Enforcement.

Effective management cannot be achieved unless all three functions are fulfilled satisfactorily as well as the ability to deal with all the inevitable problems associated with the allocation of a TAC. The Namibian government, and in particular the Ministry of Fisheries and Marine Resources, is therefore the manager of the marine living resources within the Namibian EEZ and it is to them that the above functions accrue.

In his paper Lee G.Anderson[1] is of the opinion that, "despite the new management powers granted to coastal states in terms of the LOS Convention agreements within their EEZ's many developing countries failed to utilize the potential from the LOS agreements to build biologically and economically rational management systems". The strengthened position of domestic countries under these agreements has helped to obtain international assistance to begin to solve these problems. The difficulty he says lies with the political will or economic ability to tackle the problems.

However the management of the resources within the Namibian EEZ should be seen within the context of it's own peculiarities such as, the type of fish stocks, designated fishing areas, fishing methods, regulatory framework, etc.

## PART ONE

### A) PRINCIPLES FOR A NAMIBIAN FISHING INDUSTRY.

Although there are various principles for fisheries management applied in different regions of the world the following principles are hereby proposed for consideration in a Namibian fisheries management policy.

1. The policies for regulating a fisheries.
2. Data needs and a fishery information system.
3. Conservation.
4. Namibian interest.
5. The Namibian population.

## 1. THE POLICIES FOR REGULATING A FISHERY.

Setting management objectives is one thing and achieving those objectives another and therefore it is necessary for the fishery authorities to examine the various methods whereby they can regulate a fishery. The productivity of a fishery is related to the following variables.

a) The growth rate of the fish or annual increment to the stock.

b) Recruitment into the fishery by reproduction, migration or the young fish entering the stock each year.

c) Natural mortality of the fish or annual deaths occurring from natural causes such as diseases, predation, etc.

d) Fishing mortality or the annual deaths from fishing equals the annual catch.

Recruitment and growth causes the fish to increase whereas deaths from natural causes and fish recruitment causes the fish stocks to decrease. Over natural deaths and the rate of recruitment into the stock we have no control. However we are able to a certain degree to control the fishing mortality by controlling the fishing effort and productivity by regulating the age at which fish enter the exploited phase of the fishery. All fishing regulatory schemes therefore fall within two basic methods of regulation namely those to control the rate of fishing and those to control the age at which the fish may be exploited and can thus be set out as follows.

**1.1 Controlling the fishing effeort, access or the rate of fishing by:**

1.1.1 Catch limitations.
1.1.2 Controlling the fishing effort.
1.1.3 Reducing fishing time by the introduction of fishing seasons or limiting the time at sea.
1.1.4 Declaring protected areas.

**1.2. Controlling the age or average size of the fish caught by:**

1.2.1 Minimum mesh size regulations.
1.2.2 Fish size limitations or minimum landing sizes.
1.2.3 Closed areas.

The abovementioned management methods will now be briefly discussed in turn and it must be further borne in mind that both methods are complementary to each other and not mutually exclusive.

**1.1 Controlling the fishing effort, access or the rate of fishing.**

**1.1.1 Catch limitations.**

Catches can be limited by the setting of annual TAC's and the introduction of quotas either annually or seasonally for regulating the fishery. The fishing effort is thus stopped when the annual TAC and quotas are filled. However this method does not lend precise control over the fishing and gives no consideration to the fleet size and the fishing methods employed.

### 1.1.2 Controlling the fishing effort.

This regulation is aimed at limiting the entry of manpower and number of vessels into the fishing grounds. Controlling the fishing intensity is necessary in order to prevent the overexpansion of the fleet and overinvestment. With this method, restrictions are placed on manpower and number of fishing vessels or the fishing gear which may enter a fishery based on biological, economic, social and political consideration. In order to benefit from this method there has to be precise limits placed on those fishing vessels granted access and these limitations must be strictly enforced. Overexploitation can therefore only be prevented through strict enforcement to prevent illegal fishing. The fishing effort or intensity is thus the result of all the fishing activities whether legal or illegal. A method of reducing excess capacity in a fishery can be done by criteria such as vessel age discrimination or government buyback incentives for scrapping aged vessels. Controlling the fishing effort can also be used as a means of increasing local participation in the fishery without increasing TAC's and vessel capacity.[2]

### 1.1.3 Control of fishing time or seasons.

By limiting the fishing to specific times, e.g., number of days per week a reduction in the fishing effort can be achieved. Although, such a method could increase the cost of fishing as fishermen are not ensured of cost effective catches and some fishing grounds may be far away from shore. This method should therefore only be used where an urgent need exists to immediately reduce the fishing effort due to depleted stocks. Specific seasons during the course of the

year may also be introduced for specific species according to times and areas determined by the authorities.

### 1.1.4 Protected areas.

Closing of specific areas from fishing during periods when the fish are in specific stages of their development and are regarded as juveniles or to protect certain scarce species from extinction. Where these sanctuaries[3] or spawning grounds are closed juvenile fish will be protected until such time that they have sufficiently matured to become commercially exploitable. This method can however result in the overstocking of fish in the sanctuary areas and understocking in unprotected areas and is therefore a rather imprecise method of protection. Despite this limitation, protected areas have their advantages since they provide breeding and nursery grounds for juvenile fish. Stocks of fish within these sanctuaries could migrate when they are mature to replenish those exploited areas.

## 1.2. Controlling the age or the average size of the fish caught.

### 1.2.1 Mesh size regulations.

Traditionally mesh size regulations are one of the principle methods employed in controlling the pattern of fishing mortality. The principle behind this method is the idea that the bigger, the larger the mesh sizes the more infant fish can escape the nets and thus grow to become larger more mature fish that can contribute to the biomass of the fish stock in later years. The reasons behind the

introduction of mesh regulations is to protect undersized fish from cultivation and also as a method of conservation since small fish later discarded are of no use once they are already dead. Various problems however occur with the introduction of mesh size regulations. Specific mesh sizes may cause considerable problems in a multi-species fishery such as exists in countries like Malaysia, Indonesia and Thailand. However mesh size regulations can be an effective method of control and conservation especially in a single species directed fishery. Another problem for consideration is the ability to convince fishermen of the long term benefits of mesh size regulation and consultation with fishermen is thus necessary as it is easy for fishermen to bypass mesh size regulations in a number of ways. In addition to the above it is also necessary to prohibit the carrying of nets of more than one mesh size. By prohibiting the carrying of nets of more than one mesh size on a given voyage and by relating the permitted species composition of the landings to the mesh size of the nets carried fishermen would be encouraged to carry the mesh appropriate to the species to which they were directing their fishing effort.

### 1.2.2 Fish size limitations or minimum landing sizes.

Placing limitations on the size of fish per species that may be caught or landed has basically the same objective as the other methods of conservation such as minimum mesh sizes, seasonally closed areas, by catch limits etc. namely to prevent or minimize the catches of small or juvenile, immature fish. By placing limits on the size of fish that may be caught or landed, it is aimed to direct fishermen towards the catching of fish that have reached a certain growth or maturity. This method is directly linked to mesh size

limitations and it's accompanying problems when fishing for demersal fish which consist of a mixture of species for each of which the optimum mesh size is different.

The minimum landing size of fish is the same as fish size limitations and has as it's objectives:

(1) To reinforce minimum mesh sizes by making it not worthwhile for fishermen to use undersized meshes to catch fish which cannot be landed and
(2) To deter fishermen from fishing in areas where small, juvenile fish predominate.

Minimum landing sizes however, leads to waste as small, undersized fish caught are discarded and there is no guarantee that small fish once caught and discarded will survive. This defeats the objectives of conservation. However by regulating the landing sizes of fish fishermen are encouraged to fish in those areas where mature, larger fish predominate as it becomes uneconomical for them to fish in areas where small fish are in abundance.

### 1.2.3 Closed areas.

Prohibiting fishing in areas where small fish predominate remains one of the most effective methods of minimizing the capture of small undersized fish. There are however, many problems associated with this method.(See Chapter A 3) One of the advantages of this method of conservation is however that it facilitates surveillance since those areas are closed to any fishing and any fishing activity in those areas automatically become a punishable offence and violations by fishermen are unlikely.

**The choice of a regulatory method.**

The choice of a regulatory method should take into consideration biological, economic, social and political factors existing within a fishery. The more difficult it is to enforce a particular method the less effective it is and the less likely it is to succeed compared with methods that are less efficient but more easily enforceable. It is imperative to discuss regulatory methods with fishermen before implementation in order to ensure their cooperation. Fishermen are more likely to abide by rules and regulations which they understand and regard as fair. Once convinced that these regulatory and conservation methods of fish stocks are to their own future benefit the more willing they may be to comply with them and would even be willing to help in their enforcement by reporting violators. Self policing by fishermen would furthermore facilitate enforcement by the authorities.

**MECHANISMS FOR CONTROLLING THE FISHING EFFORT.**

The Indo Pacific Fishery Commission (IPFC) in 1987 suggested three approaches applicable to multi-species fisheries that governments may use to control the fishing effort directly or indirectly.

**a) License limits.**

This is a most direct method of controlling the fishing effort as the scheme licenses units of effort and limits the number of licenses granted. Three major tasks are involved in this scheme. (1) License the number of fishing units in terms of the number of vessels, tonnage, engine power, fishing

gear, number of fishermen etc.(2) Determine the optimum number of vessels to be licensed per stock and per quota this should be determined in light of the TAC and other information available. (3) Allocate the licenses using different criteria as determined by the individual abilities such as the number of years fishing, dependence on fishing as a livelihood, fishing skills, nationality etc... The issue of the transferability of the license should also be addressed.

**b) Economic controls.**

License limits to prevent an overcapacity in the fishing effort especially in the case of large scale operations through government incentives, e.g., compensation to induce the retirement of elderly and inefficient vessels, or through encouragement of new industries through soft loans and other techniques to attract fishermen to other activities.

**c) Territorial Use Rights in Fisheries (TURFS)**

This would be more appropriate to small scale fishing communities in nearshore areas, lagoons and reefs. This is a method whereby tenure is granted over certain areas of the resource to the local community which indirectly, control fishing effort by self regulation and rationalizes the fishery as most small scale fishing communities have a sense of territoriality.

## 2. DATA NEEDS AND A FISHERY INFORMATION SERVICE.

### 2.1 Acquisition of information; data needs and a fishery information system.

#### a) Information is needed for management.

It is clearly necessary to have information available in order to attain the objectives of management, namely to produce the maximum benefits from a fishery and to allocate these benefits. The gathering of the right information will allow the decisions to be specifically designed to reach these objectives. Thus, unless information is collected and analyzed, those who should benefit from the resource are most likely to receive no benefits or receive far less then what they expected.

#### b) The type of information that is needed.

All types of information relative to production and the allocation of benefits should be gathered and analyzed by those responsible for management. Information should not only be sought with regard to biological data and physical measures such as catch, effort by area and species used for biological modelling, but also information on the economic and social factors of the fishery. As information is not cost free it is suggested that the information that is sought is relative to the benefits produced and therefore management should observe the economic principle of marginal returns and the cost of information.

c) **Data needs for stock assessment and a fishery information system.**

Data is needed for stock assessment and the determination of TAC's through methods such as the following;

c.1. Routine statistics of:

Production. Data should be gathered on the harvest by area and catch on a monthly, bi-monthly, quarterly or annual basis and comprehensively summarized annually by species or groups of species, by fishing gear, by sector (e.g. nearshore/offshore - artisinal/commercial) and also by area division.

Fishing effort. Information should further be gathered and summarized annually in terms of the number of fishing vessels, number of trips, etc.. Monthly, bi-monthly or quarterly data with annual summaries in terms of the number of days fished, hours fished, number of hauls and the type of gear, by sector and by the area of subdivision.

Value of landings. Monthly, bi-monthly or quarterly catch value information should be gathered with annual summaries by species, by fishing gear, by sector and by area subdivision.

c.2. Research data on:

Other landing data. Species composition by gear, sector and size, composition by key species and by gear; catch information by length and weight of selected species.

Biological data. Food habits by selected species to estimate the food chain linkage. Otolith samples by key species to

determine age composition of the catch samples, age at first capture, growth and mortality. Ground samples by key species to determine age at first maturity. Migration data by selected pelagic species to determine migration and the stock structure and to estimate growth and mortality.

Survey data. Species distribution by key species, by depth, size and fishing ground. Eggs and larvae distribution by species, depth and area. Biomass and catch per unit effort estimates by key species or species groups, depth zones, area and key fishing gear.

Other data. Selectivity of mesh size, primary productivity, chemical oceanography, pollution etc.

## 3. PRINCIPLES FOR A NAMIBIAN FISHING INDUSTRY.

### 3.1 CONSERVATION.

Due to the early exploitation of and virtual extinction of certain species and fish stocks the Namibian government should adopt policies of conservation and conservatism as regards it's fish resources. There is furthermore a need to base management on a sound scientific basis as the scientific component represents a 'rational' element in the politics involved in resource management. Scientific advice and collaboration on data collecting, stock assessment and catch predictions are essential in the decision making process. It is however, realized that scientific advice and information are not the only factors determining management policy, but even so, they at least form the necessary basis for such a policy. The principle method employed for the conservation of fish stocks in any given area is to control the amount of fish landed from each stock year by year by the fleets granted

access to the area and to control the fishing methods employed. However, where fish are not landed at the national harbours, other methods of control must be employed. It remains extremely difficult to precisely determine catches of foreign access fleets.

Central to the concept of conservation is the establishment of a Total Allowable Catch or TAC. The quantity of fish that may be caught within a given year is called the TAC. The foreign fleets granted access and the national fleet participating in the fishery for each species is allocated a proportion or percentage of the TAC as a quota. In order to achieve conservation, the TAC, the national quotas need to be set before the start of the fishing season in each particular year. The national enforcement agencies then attempt to ensure that national quotas are not exceeded during the season in a particular year. In order to set a TAC and to determine the quotas it is necessary to predict the catches or how the fisheries will perform. Furthermore in order to predict the catches the current state of the stock must be known. Fisheries scientist employ a procedure known as "stock assessment" to determine the current state of the stock. Included in this procedure is allowance for the estimation of the historical state of the stock to which the present estimated state is then compared. The procedure giving rise to scientific proposals for the determination of the TAC can be summarized as;

1) Performing a stock assessment and hence determining the historical and present state of the stock.
2) Making a range of catch predictions through simulation of the way the fishery may perform in the year for which the TAC is applied.

3) Selecting one of the predictions as being the most viable in view of the current state of the stock.

Such predictions may be made for years into the future and although various difficulties, both practical and theoretical may occur, such long term predictions are used as a means of indicating long term objectives for stock conservation. Stock assessment on the other hand is the procedure by which the fisheries scientists estimate the historical and current state of the stock in order to help determine the TAC. The basic enquiry is; "How many fish of each age are currently in the sea ? How heavily are they exploited and how does stock and exploitation levels compare with historical values ?" The answers to these questions can be obtained through the analysis of the appropriate data.

One should bear in mind that scientific advice is merely quantative advice which can often be very wrong and therefore a conservative policy should be adopted to allow for a certain margin of error. A margin of 20 % less than the scientific advice can be regarded as reasonably safe in the determination of the TAC for a given year[4]. This percentage may be regarded as arbitrary by industry but could be justified in terms of policy for the long term recovery of stocks and conservation due to inadequate surveillance and monitoring capability.

## 3.2 THE NAMIBIAN INTEREST.

The interest of the Namibian people should be safeguarded through the formulation of realistic policies that are implemented by an efficient, well managed administrative

structure. Realistic and obtainable objectives should be set and balanced with a pragmatic and cost effective administrative structure. The Namibian interest in a complex industry such as fisheries can only be obtained and safeguarded through the efficiency of the administration and the control of management over the resources. The most effective way in which the Namibian interest can be secured is through a system of controls which determines and regulates a) Access to the resource.

b) Agreements with foreign countries.

## 3.3 THE INTEREST OF THE NAMIBIAN POPULATION.

It is a well known fact that the prosperity and success of any venture is largely dependent upon the efficiency and effectiveness of it's management. As fish is a natural living resource and vulnerable not only to human exploitation but also to natural and environmental variables it should be safeguarded against present and future overexploitation as it is only over the human activities that we have control. Fishery exploitation should therefore be done in a sustainable manner. Proper management of the resource is essential in order to obtain the maximum benefits. The success of management can therefore be measured against the benefits accruing to the population as a whole as part of the country's social objectives. More specifically the interest of the Namibian people is expressly safeguarded in Chapter 2, Article 95 (l) of the Namibian Constitution which provides that the natural resources of the country should be exploited in such a manner as to benefit the population as a whole. It is therefore the duty of government to manage and administer the fishery resources in a sustainable way and to especially aim

at practical measures to ensure maximum participation by nationals in the fishery sector in the form of employment both offshore and onshore. Maximum employment on board fishing vessels by locals and in processing will go a long way to achieve national objectives. The industry should be directed towards the creation and supply of local markets. Through marketing strategies and awareness programs fish as a source of food should be promoted in Namibia as it has the potential to significantly contribute towards food self sufficiency.

## PART TWO.

## POSSIBLE CRITERIA FOR A NAMIBIAN FISHERIES POLICY.

### A) CONSERVATION.

Two main types of conservation methods namely, regulations, either directly or indirectly as a means of conservation and secondly conservation through a management system of TAC's and quotas shall be discussed here.

#### 1) Direct Regulation.

Through direct regulation an administration aims to limit the rate of fishing within it's own area of jurisdiction that is within it's EEZ. Direct regulation therefore aims to limit all those factors which influence the total fishing capacity. It may furthermore place restrictions and limitations on factors such as the number of vessels and fishermen that are allowed to fish within a given period, the engine power of the vessels, the number of days that they are allowed to spend at sea fishing, the type of gear that may be employed, ancillary

equipment such as radar, sonar, etc.that may be used, designating of fishing areas and the banning of fishing activities in other areas such as spawning grounds . The administration, through these measures, limits those factors which increases the efficiency of the vessels. This is however difficult to achieve as the tasks involved are complicated for any given administration since it abounds with various political difficulties related to it's attempt to limit the freedom of entry into the fishery. Regulating the size and structure of commercial fishing fleets presents new and often awkward problems for policy makers. First of all, it presents various economical problems such as per unit returns on investments and therefore calls for some understanding of economic analysis. But, it also requires an appreciation of biological problems in fisheries management as well as the legal, institutional and social constraints and possibilities within a region. The main aim for limitations on the rate of fishing is to protect stocks from overexploitation which remains an important purpose of regulation and conservation. The task is thus to design institutional arrangements for controlling and regulating fishing capacities in line with the productive capacity of the fish stock.

2) **Indirect Regulation.**

The rate of fishing can be regulated by limiting the total catches from a fish stock. If the number of fish in different year -classes and the average weight of each group is known, then the total weight of fish which can be caught for a given fishing mortality rate can be calculated and the TAC fixed. If this catch is then fixed as a TAC, and it is caught exactly as determined during a fishing period or year, then the target rate of fishing will have been achieved.

However very often data is only available to calculate the rate of fishing on the stock but not the data of the catches which correspond to the specific rate of fishing. The reasons for this are twofold. It may not be possible to determine the age of the targeted fish which is essential in calculating the TAC corresponding to the different rates of fishing. Or the data may simply not be available. In such cases the TAC at the level of the average catch should maintain the present rate of fishing assuming that recruitment also remains at average levels. TAC's fixed and calculated in this manner may be called "precautionary TAC's".

It must be further borne in mind that because all fisheries for demersal species, catch a variety of species due to the size of the nets used and it is therefore virtually impossible for an administration to ensure that fishermen exhaust all their quotas for all species simultaneously. Fishermen may therefore continue to fish in a given area until such time that they have exhausted all their quotas resulting in having to discard catches of those species for which their quotas are already filled.

It should be further noted that selecting an appropriate TAC for a given season or year depends on short and long term predictions of the stocks. The appropriateness of a TAC depends on two major considerations namely:

a) What is the current state of the stock compared to it's historical state.

b) Is it possible to exploit the stock in a more rational manner.

To answer these two questions obviously depends on our perception of the current state of the stock, compared to it's historical status as well as on the ability to predict long term possibilities. Since each stock has its own history, it's potential for more rational exploitation may also be differ from that of others. There is no universal answer to the above questions and this is the reason why management advice is given with reference to individual stocks. It is also important to investigate those environmental factors affecting the stocks in order to make predictions on the state of the stocks and to set the value of the TAC's.

**B) THE TYPE OF QUOTA/ TAC MANAGEMENT.**

**1) No Regulation.**

Clearly any system of fishing privileges that fails to regulate either the number of vessels that may fish or their individual catches is inadequate. Therefore any fishing system which uses a system of unrestricted licenses fails in it's management objectives. Unrestricted licenses is a system that does not limit entry into a fishery. Unrestricted licenses is a traditional form of granting access but has now become almost extinct and remains in only a very few minor and underutilized fisheries under a system of selected species licenses. Such a system obviously has many disadvantages and undermines the principle of sustainable resource management and has the following adverse effects thereon. First of all, it allows fishing capacity to expand excessively and prejudices resource management. It furthermore undermines the future economic security of the fishermen and eliminates the scope for public revenues. Last, but not the least, such a

system leads to heavy administrative burdens and enforcement requirements for in order to conserve stocks from being exploited by overexpanded fleets, the fishing gear, fishing times and the methods employed need to be highly regulated.

**2) (Periodical) Quotas.**

Once the fishery authorities have established a TAC for a fish stock it is then divided into a number of quotas which are allocated according to pre-determined criteria among the application. These may be called quota licenses and the represent a method whereby individual or groups of fishermen are authorised to harvest specific quantities of fish of a given species. This system is basically the same as that used to regulate other renewable natural resources such as water rights, timber cutting and grazing rights. The administrative authority may issue licenses that authorize the use of a specific amount of the resource and the total amount licensed is constrained to the total recoverable yield of the resource. Thus the total amount of all the individual quotas for a specific period equals the established TAC for that given period. The advantage of this approach is that it eliminates the basic cause for fleet overcapacity in the fishing industry by removing the incentives of the individual fishermen to protect and increase their share of the catch. This system therefore, rather than encouraging fishermen to increase their fishing capability, encourages them instead to adapt their vessels, gear and methods to take the licensed catch at the lowest possible cost. Other advantages of this quota licensing system have been held to be the following:

a) "It provides a direct means of controlling the total catch and ensuring that it will be within the sustained yield targets set for the stocks.

b) It frees the regulatory authorities from many of the problems associated with regulating fishing activity. Some controls on fishing would obviously still be required for biological reasons. But, with the total catch controlled by licenses, most of the restrictions on vessels, gear and fishing time that are now used to prevent overfishing would become unnecessary.

c) It adds to the security of fishermen and eliminates much of the risk they otherwise face about their catch.

d) It can accommodate changes in economic conditions without disruptive effect's notably, if fish prices rise or for some other reason the fishery becomes more profitable, earnings will increase, but there will not be an automatic tendency to expand fishing capacity.

e) It lends itself to a variety of methods for raising revenues in the form of license fees and landing charges.

f) It is, in principle at least, administratively simple. And, because it deals directly with the problem of regulating the catch, once licenses are issued the regulatory authorities can concentrate on resource management rather than on regulating the fleets fishing activities."(5)

**C) NAMIBIAN INTEREST.**

**1) Through access to the resource.**

Priority should be given to Namibian companies, fishermen and other national interest groups when allocating access to the living marine resources within the Namibian EEZ. The main reasons why priority should be granted to nationals is that this first of all provides a sense of security to local fishermen, secondly, catches are landed at local ports and

processing locally is facilitated, and finally, administrative control and costs are minimized. Only in the case where the established criteria for allocation of quotas and licenses such as inability to harvest the resource, inadequate local processing capability should access be considered for foreign participation. The landing of catches locally provides a better form of management and administrative control. An additional advantage is that vessels operating out of local ports uses other ancillary services with the accompanying financial benefits. Where foreign vessels operate in a coastal state EEZ it is very seldom, if at all that they land their catches locally as they either sail for foreign ports or tranship their catches at sea. This presents accompanying problems of control for the authorities.

**2) Through agreement with foreign nations.**

Through agreement with foreign nations to harvest the excess quotas the government can ensure that the determined TAC for a particular period is filled. The various methods that could be employed by the government to grant access to foreign fleets is discussed elsewhere.(See Chapter 4). The granting of access to foreign fleets to harvest the excess is a means whereby the government levies a fee on each operating vessel. Access fees are essentially a form of taxation which are designed to:

(1) Extract a resource rent from the fishery;
(2) Foster operational efficiency in the use of the resource and;
(3) Provide an instrument by which the government can regulate, develop, conserve and manage the fishery.

The disadvantage of the system of access fees is that the burden of paying the fees can be avoided by fishermen by opting not to fish in areas where fees are payable or operating illegally in areas where the payment of the fees are mandatory. However by imposing harsh fines for illegal fishing fishermen will be discouraged to operate illegally as they will not be prepared to face the financial burden. Fees should however, be realistic and be related to the use made of the resource by the individual fisherman per period of time. It is furthermore advisable that the government should adopt a strict policy of access fees payment and should avoid in kind subsidies or other forms of aid in the form of other goods and services as an alternative to the payment of access fees. The main reasons for this statement are that first of all in kind subsidies or aid confuses the issues for fisheries development Secondly experiences elsewhere in Africa has proven that such arrangements are likely to lead to poor compliance and unfeasible projects.(See Chapter 4)

**D) THE INTEREST OF THE NAMIBIAN POPULATION.**

**1) Employment.**

The Namibian government in it's White Paper on fishing policy dated August 1991 committed itself to conserve and manage the national resources to the benefit of the Namibian people. The exploitation of the marine living resources should however be geared towards the creation of more employment opportunities in the fisheries sector. Not only should the stake of the national fishermen in the allocation of quotas be increased but continuously evaluated both in the short, medium and long term in accordance with local

capability but the employment of nationals on foreign fleets should form part of the terms of access to these foreign fleets. However, strict compliance with such conditions should be ensured through administrative measures and legal safeguards as it is easy to find loopholes in agreements which are poorly worded. Methods of avoiding such provisions in agreements has been perfected in access agreements elsewhere where payoffs and bribery are the order of the day.

Access agreements should furthermore specifically provide for the training of nationals on board foreign vessels. This type of on the job training should be geared towards providing locals with the neccesary skills and expertise for the future that will enable us to provide our own manpower in the exploitation of our resources. Employment in areas such as processing should also be given serious priority together with a policy to expand present processing capability.

**2) Expansion of local markets.**

It is indeed ironic that a country with such vast fish resources has such a low fish consumption. More than 98% of the fish harvested in the Namibian EEZ is for export to foreign markets. With the current drought facing the country it has become imperative that the traditional dependence on agricultural products such as wheat, maze and meat be substituted through the promotion of local fish consumption. There exists a definite need to promote the local market for fish and fish products as an alternative source of food of high nutritional value. Through government and private sector initiatives and promotional programs such as education and advertisement the nutritional value of fish and fish products as a source of food should be promoted amongst the Namibian

population. Programs should be developed to create an awareness of the value of fish as a source of food whereby the local markets can be developed and extended. Promotional programs will therefore play an important role in the domestic awareness of the value of fish and subsequently in the domestic demand for fish and fish products.

This is however no small task since high value fish is certain to fetch higher prices on foreign markets and form an important percentage to the national income. However a policy whereby bycatches (with restrictions) of less valuable species are locally landed should be investigated to supply such an expanded local market. The benefits of this would be twofold namely; it will provide an additional source of food and secondly it will limit the discard of catches and subsequently the waste of the resource since discards once dead at present have no value.

ENDNOTES.

CHAPTER 2

(1) Lee G. Anderson, p. 462 para. 1

(2) See Chapter 6 (C) 1.P108.

(3) Sanctuaries needs to be scientifically justified and designated

(4) This is my own estimation and is regarded as reasonable as a safety measure for conservation and stock recovery.

(5) H.Pearse p. 252, para.5.

# CHAPTER 3

## REGULATIONS

### INTRODUCTION

Section 4, article 62 of the Law of the Sea Convention deals almost exclusively with the regulatory powers of the coastal state within it's EEZ. The coastal state can prescribe and impose regulations in respect of foreign fishermen within it's area of jurisdiction. In respect of it's own nationals the coastal state may exercise unlimited legislative and administrative jurisdiction. The coastal state may therefore impose whatever regulations and conditions it may deem fit on its own fisherman. However in exercising it's jurisdictional powers in achieving management objectives the coastal state is limited by the provisions of Article 61 of the Convention which provides as follows:

a) To ensure that the living resources in the EEZ are not endangered by over-exploitation by taking into account the best scientific evidence available.

b) That measures of conservation and management are designed to maintain and restore the fish stocks at levels which can produce the maximum sustainable yield as qualified by the relevant economic and environmental factors.

Paragraph 4 of article 62 provides a list of the types or kinds of regulations, laws, terms and conditions which the coastal state may prescribe for the purposes of conservation

and management, and more specifically, as regards the regulation of access of foreign vessels in the coastal states EEZ. There are thus two kinds of regulatory powers envisaged by paragraph 4, namely the prescription of conservation and management measures and the terms and conditions of access to foreign vessels. The coastal state has therefore the right to regulate foreign fishing activity within it's EEZ but subject to certain constraints. The coastal state's right to regulate both for it's own national and foreign fishermen will be discussed together as applying to both, with regard to the various measures that could be adopted. These measures and techniques will be briefly discussed here. But the discussion is limited to those regulatory methods traditionally employed to control the harvest levels or the quantity of some or all of the inputs or effort. A discussion on the economic profit equation or prices received for the selling of fish or paid for the inputs is not addressed because of the limited scope of the paper. This chapter is furthermore limited to those regulations which are designed to protect selected portions of the fish populations and which may or may not result in the overall reduction of the catch.

These measures are divided into two categories namely those regulations which are most general and do not restrict access and secondly those measures which deal with access and which are aimed at the limitation or the reduction of the total catch or fishing effort. The measures that do not restrict access are:

1) Mesh size regulations;
2) Regulations of the size limit of fish;
3) Establishment of fishing seasons and areas; and
4) Regulation of total catch by species.

The measures that restrict access directly or indirectly are:

1) Limiting the number of vessels and gear required to harvest the total allowable catch; and
2) Indirect methods of licensing, quotas and taxation or royalties.

**A) REGULATORY METHODS THAT DO NOT DEAL WITH ACCESS.**

**1) MESH SIZE REGULATIONS.**

Mesh size regulations were originally designed and introduced because there was general agreement that young fish had to be protected. A further reason was the general destructive and indiscriminate nature of net trawl fishing methods. The purpose of controlling the size of meshes on trawlers was based on the assumption that size limitations would permit the escape of smaller, younger fish of a certain size and age in order for them to grow into larger, mature adult fish that could be exploited later. The mesh size is thus directly related to the size of the fish which is aimed to be caught. It has however remained difficult to determine biologically exactly when fish have reached a mature age due to a lack of information on the stocks. Secondly there are no guarantees that young fish will reach maturity and be exploited. Various factors such as natural fish mortality or adverse environmental conditions can be attributed for this uncertainty. Mesh size limitations have the further disadvantage that in actual trawl operations more than one species of varying size and age may be taken in the same operation. Mesh size regulations are therefore fraught, despite their wide applications in fisheries globally, with certain obvious flaws and are difficult to enforce.

Fishermen's ingenuity has devised various illegal methods for non compliance with mesh size regulations as it is very easy for them to change the nets or reduce the mesh sizes by inserting additional pieces of net in the cod-end and to attach them in such a manner that they are easily removed.

**2) REGULATING THE RETENTION SIZE OF FISH CAUGHT.**

The purpose of regulating the retention size of fish caught is basically the same as mesh size limitations and provides a direct deterrent for the retention of fish under a specified size. The objectives are the same namely the prevention or minimization of catches of small fish. Minimum catch size of fish may however discourage but not necessarily prevent the capture of undersized fish. This regulation does not therefore effectively prevent capture but merely determines the landing size of the fish caught. Fish caught which are under the landing size are of necessity discarded as they become unprofitable to the fisherman. This regulation may thus be counterproductive and negate the conservation objective since there is no guarantee that undersized fish caught and discarded will survive and continue to add to the biomass. When fish sizes are limited there is no incentive for fishermen to retain undersized fish caught and hauls may include substantial quantities of undersized fish most of which may already be dead when discarded. Furthermore fishermen themselves may have little reason to keep undersized catches since they may have little value or because bigger fish is required for production of e.g. frozen products or they may not want to risk having to pay fines for undersized landings. It would therefore make sense to adopt flexible regulations whereby not all undersized catches are discarded. These initiatives may include the sale of

undersized catches on the local markets or by making allowance that a certain percentage of the catch may be undersized etc. It is however important that limitations be placed on the by catches and in addition to providing for the local markets by catches are valuable for scientific analysis.

**3) REGULATING CLOSED AREAS AND SEASONS.**

The closing of certain areas and seasonal closures may be introduced for specific times of the year for specific species and may further pertain to all or specified areas. Fishing seasons can thus be introduced for different species at varying times of the year and certain specified periods when all fishing is prohibited. Furthermore specified areas may be seasonally , permanently or partially closed to fishing activity. The purpose of this regulation is to protect those areas where small fish predominate in order to prevent the capture of small and undersized fish. Seasonal and area closures on certain fisheries may be introduced to protect nursery areas and spawning grounds also to prevent conflict between e.g., artisinal and commercial fisheries. There are however certain problems that arise out of seasonal and area closures. Where small fish are in abundance in near coastal areas which are closed, fishermen with short range vessel capabilities are prejudiced as they are unable to catch farther offshore. Secondly a valuable fishery may co-exist in the same area as small fish and consequently this reduces the effectiveness of closure. Closed areas and seasons may on the other hand facilitate surveillance as they prohibit any vessel activity and are therefore one of the easier regulations to enforce. Furthermore time and seasonal closure may be introduced, not necessarily to protect target

stocks, but for the purpose of minimizing the accidental catch of certain species.

**4) REGULATION OF THE TOTAL CATCH BY SPECIES.**

Regulation of the total catch by species is the most direct and commonly used method of controlling cultivation of a specific species or stock. This regulation determines the total quota or catch for a specific species. Species may however very often consist of more than one stock and therefore the total catch by species or stock may further be determined by way of regional allocation. Total quotas or catch for a fishery as a whole have an indirect effect on the effort and input usage as the individual catches of fishermen will be limited by the combined catch of the entire fleet. Total catch by species regulations has originally been considered as amongst the easier component to measure in fisheries data. This is however only the case where the fish is locally landed and weighed. Estimating the catches of distant water fleets and factory ships, or where transshipment takes place at sea is much more difficult to determine. These vessels in most instances never provide accurate data on the type of fish caught, the quantity caught or discarded.

There is therefore very little or no accountability for catches by these vessels as this data is extremely difficult to determine. Further problems arise namely that fishermen are reluctant to accurately report the exact amount or location of catches due to the competitive nature of the fisheries industry. This applies whether the total catches are regulated or not. However if the limits placed on catches are not vigorously controlled, monitored and enforced

there is bound to be inaccurate reporting of catches and discards. In addition to the underlogging of catches, undersized, undesirable and even prohibited species may also be discarded in order to maximize catches under a mixed species quota. The accuracy of catch reports are difficult to assess even with the most efficient surveillance and monitoring schemes and methods. Thus the magnitude of error in reporting cannot be accurately evaluated.

## B) REGULATORY METHODS THAT DEAL WITH ACCESS

### 1) DIRECT CURTAILMENT BY REGULATING THE SIZE OF FISHING VESSELS AND GEAR.

Regulating the size of fishing vessels and gear has become a widely used method to curtail the fishing effort. By placing restrictive measures on the size of vessels and gear the harvesting capacity of the allowable catch is controlled. This method may be employed to determine the type and size of vessels that may enter a fishery and also the type of gear that may be used. In most developed fisheries there exists an overcapacity of fishing vessels. This situation arises as a consequence of market demands and the common property nature of the fisheries resources. It has thus been thought that in order to prevent the overexploitation of the marine living resources within a fishery and to control market prices, that the size and the number of vessels to enter the fishery should be restricted, the capacity limited and the type of gear to be employed specified. If the resources were not of a common property nature, but privately owned instead then the harvesting strategy employed would be to minimize cost and maximize long term yields and profits. If this was

the case there would be little need for regulations and governmental infrastructure. However since fisheries are publicly owned there is a need for control and regulation to prevent overharvesting and possible extinction of the resource. More entrants into a fishery with a fixed TAC requires a corresponding decrease in the catch per vessel, a lower per dollar return of all operating costs and a shorter fishing season as apparent consequences. This scheme for controlling the fishing effort or harvesting capacity has been introduced in a number of fisheries around the world.[1] Restrictive regulations on the type of fishing gear are aimed at reducing the efficiency of the fishing unit and thereby reducing the size and quantity of the catches. It must however, be borne in mind that regulating the size of commercial fishing vessels, as with most gear regulations, simply increases the operating cost of a fishery and puts them at a disadvantage when competing with fish and fish products from another region. Restricting the type of gear used in harvesting operations remains however a universally acceptable method of control. The reasons why these measures became acceptable are mostly due to social considerations. Control over the type of gear became necessary as highly efficient gear may lead to the overexploitation of the fish resources especially in a highly localized area even though it is recognized that gear restrictions reduce efficiency in the taking of catches and thus increases operational cost. There are two main reasons why restrictions are placed on fishing gear in certain areas, namely the highly efficient nature of certain types of gear and the destructiveness of such gear. Furthermore, restrictions have also been known to be placed on the size of the units of gear to limit harvesting capacity. Regulations have also been devised to apply to the following:

a) The length and depth of the gear;
b) Mesh sizes of commercial fishing gear;
c) Minimum landing size of fish;
d) The banning of discards;
e) Prohibiting the carrying of nets of more than one mesh size per fishing voyage; and
f) The permitted species composition of landings to be related to the mesh size carried.

Vessel and gear restrictions are therefore methods of controlling and limiting the overall capacity and efficiency of the individual fishing unit and thus of the entire fleet.

**2) INDIRECT CURTAILMENT METHODS WHICH CAN BE EMPLOYED TO LIMIT THE NUMBER OF FISHING VESSELS PARTICIPATING IN A FISHERY.**

There are various methods which can be employed to limit the access of vessels into a fishery. The type of methods varies from country to country and there is no single universal approach. These methods of entry restrictions or resource rent methods have been devised in addition to the traditional forms of control discussed above as the former were deemed inadequate in controlling the amount of capacity or effort of fishing vessels. Their objectives are two fold namely:

a) To limit the fishing effort and to reduce over-capacity, and
b) To extract a resource rent as payment for harvesting the resource.

These methods include, among others, the following and will be briefly discussed hereunder:

1. Licensing;
2. Catch quotas;
3. Taxation on vessels and equipment; and
4. Taxation on the catch.

## 1. LICENSING

Restrictive forms of licensing provide one of the major methods employed by developed fisheries in the world and this has become a widely adopted approach to control expansion of fishing effort and capacity.[2] Licensing works by seeking to regulate directly who may, or may not, participate in the fishery. Only those who have been granted a license may therefore participate in the harvesting of the resource. Licensing as a method of granting access to a fishery may be even further restricted by certain terms and conditions such as the payment of a fee, the designation of the number and type of vessel and gear, and even to the establishment of a quota attached to the license. The question further arises as to what precisely has to be licensed. Is it the vessel, gear or the fishermen? The answer to this question depends on the particular custom and practices of different countries, but most often the license is directed at the boat or vessel. Whatever it is that is licensed, all licensing schemes have the same objective, namely to limit the fishing effort. License restrictions should be specific and not merely limit the number of vessels entering the fishery. They should place specific restrictions on most of the dimensions of the

fishing effort. It is however virtually impossible to place restrictions on all the dimensions simultaneously as these are numerous and diverse (including vessel size, power, crew, time spend fishing, all aspects of finding of catches and holding gear etc.) addressing all such dimensions would be extremely costly and enforcement. It is therefore extremely difficult to regulate all the various combinations of inputs. A FAO committee, in a 1978 review of the arrangements for regulating trawl fleets in the Mediterranean, already then reached similar conclusions when it stated that:

" Limitation of the number, tonnage and engine power of trawlers is not usually sufficient to block the fishing effort permanently. In effect, the fishing power of a trawler depends, not only on the conduct and distribution of fishing operations, but also on a great many other factors (traction power, plan and rigging of the trawl, equipment for navigation and fish detection etc. In practice it seems unrealistic to attempt to establish clauses covering all the procedures to which one may resort to improve the performance of a vessels. Moreover, this would prevent advantage been taken of the gains in productivity to be expected from technological advances."

Restrictive licenses further raise problems of allocation. Thus to whom will a license be issued and what are the criteria for such allocation. Various criteria or methods of allocation is being used such as auctioning of the license or allocation to those who have traditionally fished in the region. Strict criteria for allocation should however be used as allocation could lead to problems such as political favoratism, unfair advantage, fraud and bribery. A further consideration that should be taken into account is

the duration and transferability of the license. Most licenses are of medium term duration of two to five years and are usually non transferable.

Licences comes in a variety of forms and are difficult to categorize as the various systems differ in fundamental respects. There seems to be no clear rationale since the terms and conditions of licences and the way they are administered have not been well documented with the resultant complexities and problems. Some of the regulations are however, common to most licensing forms namely:

a) They are for a specific period and renewable;

b) Most vessels are subject to some form of replacement restrictions;

c) Limited entry licences are usually transferable by one method or another; and

d) The Minister in charge usually has discretionary prerogatives to grant a licence or not, suspend, cancel, refuse or renew it.

The following can be regarded as basic forms of licences under current licensing arrangements:

**1) License for a specific species.**

Under this form the license is linked to the species. Only that specific species may thus be caught during the duration of the licence.

**2) License for more than one species.**

More than one species is coupled to the same licence and provides more flexibility to the licensee.

**3) License for specified type of vessel and gear.**

This form of licence places restrictions on the type of vessel and gear that may enter a fishery for various policy and management considerations.

**4) License for certain species and quota.**

In this form the licence is restrictive as to both the type or species of fish caught and the quantity that may be caught

**5) Quota licence.**

This form of licence assigns a specified catch to each licence and has certain advantages as it to a large extent eliminates the competitive scramble for a share of the catch and thus incentives to invest in excess fishing capacity.

**6) Limited entry licences.**

This method limits the number of participants in the fishery. The disadvantage of this form of licence is that although the number of persons or vessels with licences are fixed the authorized catch of each licence is unspecified and it retains the incentive to invest in excess fishing power. It is therefore prudent when using this system to counter those incentives by placing restrictions on the licence such

as vessel replacement rules and controls on vessel improvements in order to prevent more investment in fishing power and efficiency.

## 2. CATCH QUOTAS

This is yet another method to restrict the total catch without either limiting the efficiency of the individual unit of fishing gear or the number of fishermen. By imposing a limit on the total quantity of fish that may be harvested in a given year through the or setting a quota, the result's that all fishing pertaining to a specific quota will stop once that quota is reached. Such a quota system is however, only suitable to such species or stock for which sufficient biological knowledge and information has been accumulated in order to make reasonably accurate predictions about their abundance sufficiently in advance of the fishing season. the accuracy of the predictions depend on various factors such as the adequate annual sampling of the population. This system of total catch quotas is mostly used in commercial fisheries. First of, a total catch quota for the year/season according to species, is determined by the authorities. Second the total catch quota is then divided up among the individual licensees to catch a certain percentage of the TAC or more specifically to land a specified quantity in accordance with the license quota. This individual quota can be expressed as either a percentage of the TAC or in quantities such as tons of fish. the quota may also be further restricted to a specified species. Quotas may once, they are determined, simply be granted to fishermen upon certain criteria free of charge or they may be sold.

## 3. TAXATION ON VESSELS OR EQUIPMENT.

This is a form of indirect restriction on the fishing effort and has the same effect as the other methods discussed above. Some economists have suggested that instead of direct limitations on the fishing effort, e.g.., on the vessel and gear through restrictive licensing, the same result could be achieved by taxing the inputs. (Smith 1969; Scott and Southey, 1970) The introduction of a high tax on the inputs or the catch and landings would force fishermen to operate at a level that is considered optimal. Fishermen would then find that because of the high tax imposed they are unable to operate at the original open access level.(Theoretically at least it would make no difference whether the tax is imposed on the catch or the vessel) The objective of the taxing method is to raise a tax on effort and to drive out surplus capacity (because it would become unprofitable for some fishermen to operate) until such time as the desired effort level can be sustained. This method however has two inherent weaknesses. First of all, if the tax on the vessel or inputs is too high it may result in the dislocation of local fishermen if imposed on them. There would be no improvement on the incomes of fishermen and may lead to a mass exodus out of the fisheries and these people would again have to be located and employed elsewhere. Due to the above, this would necessitate that such a tax base will have to be carefully planned and analyzed and would have to strike a balance between the principles of conservation and the social welfare of fishermen. Second, this method has been held to be "providing a ready mechanism for manipulating the distribution of effort among stocks and fishing grounds and for responding to changing circumstances through differential rates of tax". However, this would bring about uncertainty

in the industry and fishermen would regard it's application as arbitrary and would further also resist frequent changes. It is also very clear that, any uniform constant levy would clearly be inadequate in differing and changing conditions". Moreover "it is difficult to visualize this flexibility in practice; quite apart from the administrative complexity of determining the appropriate rates for different locations and stocks (especially in mixed fisheries), the rates would have to be adjusted constantly to the changes in the availability of fish, harvesting costs and fish prices".(3)

## 4. TAXATION ON THE CATCH

Imposing a tax on the catch has become quite popular as yet another method of limiting the fishing effort. Instead of putting a tax on the vessel the tax is now levied on the actual catch or landings. This proposal for rationalization of the fisheries has been proposed by many academics on fisheries (Anderson 1977: Bromley & Bishop 1977; Sinclair 1978, and others). An appropriate tax on the landings would reduce the financial returns of fishermen to such an extent that they would be forced to adopt the most efficient number of vessels and gear and to operate them at minimal cost. It has been held that "if the tax is imposed vigorously enough, it can effectively reduce and contain fishing effort by rendering it unprofitable to expand and it will do so without generating any of the tendencies toward technological distortions associated with restrictive licensing or on the particular factors of production." This method is a highly flexible mechanism as the application of differential rates can influence the pattern of effort and be manipulated among species, stocks and locations. This method

however also has certain disadvantages namely the following:

a) It might be difficult to adapt to changing conditions;
b) It may lead to unequal distribution of effort;
c) Unequal distribution of benefits may also result;
d) May lead to dislocation and affect employment; and
e) It could be administratively complex and costly to successfully implement.

ENDNOTES.

CHAPTER 3.

(1) For example the U.K and France.

(2) Licensing is widely used in nearly all the major fisheries of Canada and several of those in the U.S.A have been subjected to restricted access during the last few years and examples are found in certain European countries Australia,Japan,South Africa and on an increasing number of other countries (Mc Keller). Licensing arrangements are also being developed by coastal states to regulate foreign fishing in their extended fisheries jurisdiction (Kaczynski 1979).

(3) H.Pearse. FAO Fisheries Technical Paper No.197.p30.para.5

# CHAPTER 4

## ACCESS ARRANGEMENTS AND BILATERAL FISHING AGREEMENTS

Although fishing rights arrangements existed before the extended jurisdiction concept under the convention on the Law of The Sea, such arrangements have since mushroomed as many nations made full use of their extended jurisdiction to acquire a variety of benefits from their living marine resources within their EEZ's. The access arrangements and terms and conditions of agreements are diversified and reflect the local conditions of the host countries. Despite these diversities in the agreements, there are many factors, features and characteristics in common.

### A. Principles governing the granting of access to foreign fishing vessels.

#### 1. The concept of surplus

The principle instrument for the granting of access to foreign fleets since the 1970's was the Law Of The Sea Convention. Many new access arrangements have resulted in agreements entered into as a result of the extension of national jurisdiction over fisheries. Under the provision of the Law of the Sea convention (Article 61 par. 1 of the convention) coastal states are required to promote the objective of optimum utilization of the living resources of the EEZ. However, coastal states also have corresponding obligations to:

a) determine the allowable catch of the living resources within the EEZ.
b) determine their own capacity to harvest the resources at any given time.
c) where coastal states do not have the capacity to harvest the total allowable catch they have to give other states the right of access to the surplus.

The rationale behind the concept of granting access to the surplus is to ensure optimum utilization of the resources in the interest of the international community and to avoid the situation where resources would be left to waste by incapacity to harvest them.

It is important to note that the convention make specific provision to the factors to be considered in determining the TAC and also that negotiation remains the basis for the granting of access to the surplus of a coastal state fisheries.

## 2. Selection criteria for granting of access as provided in the convention on the Law of the Sea.

The convention provides certain specific but deliberately vague (to provide for flexibility) criteria for granting access to other states. Article 69 para. 1 provides that the coastal state shall take "all relevant factors" into account when granting access to other states for fishing in their EEZ. This vague criteria is meant to include factors such as biological, economic, social and political facts. These factors however are not meant to be exhaustive but

merely to provide guidelines for selection of those states to be granted access. The most important factors mentioned in the convention, namely the economy of the coastal state and national interest are merely guidelines of the significance of the resource to the coastal state.

**a) Provisions of Art. 69. (The rights of land locked states) and Art. 70 (Rights of States with special geographical characteristics).**

Article 69 paragraph 1 provides that coastal states shall allow land locked states and other disadvantaged countries to share on an equitable basis with nationals of coastal states in the exploitation of the living resources of neighboring EEZ's. Such arrangements are to be worked out through negotiations of agreements bilaterally or regionally. This right of land locked states and other disadvantaged states may be exercised only in the same sub-region or region.

Article 7a para. 4 provides similar provisions with reference to coastal states with special geographic characteristics. Para. 2 defines such geographic characteristics.

**b) The requirements of developing countries in the sub region or region in harvesting part of the surplus.**

Although very few agreements seem to specifically refer to this provision, its application has been considered in agreements between certain developing countries in the same region or sub region e.g., the 1976 Cuba-Mexico agreement.

These agreements are however very few as their economic benefits and technology exchange value are rather limited and seem to be based mostly on political and ideological reasons.

**c) The need to minimize economic dislocation in states whose nationals have habitually fished in those zones.**

An example of the application of this principle is the EEC fisheries policies which provides for the fishermen of member states who have traditionally fished in areas under the national jurisdiction of another state to continue to fish in those areas. This is taken into consideration when determining quota allocations to member states. Other examples - fisheries agreements between USA-EEC and CANADA-EEC.

**d) Minimizing economic dislocation of states which have made substantial efforts in research and stock identification.**

Few agreements refer to this aspect since most countries that have made contributions to research and stock assessment are also those countries that have habitually fished in those areas. Most agreements which mention this provision specifically are those between developed countries.

The factors mentioned are however not exhaustive in determining rights of access and few agreements mention them specifically although they form the underlying guidelines and very often have political and ideological implications.

## B. Terms and conditions in granting access to foreign fleets

Article 62 para. 4 of the Convention on the Law of the Sea provides that foreign vessels fishing in the EEZ of a coastal state shall comply with conservation measures and with other terms and conditions established in national laws, rules and regulations. It further mentioned that the national legislation needs to be consistent with the provisions of the convention.

### 1. Requirements regarding fishing operations.

The main aim of this requirement on the scale of fishing operations is to direct and control the fishing capacity. This objective may be achieved through various methods, among others the following:

- The number and type of vessel flying the flag of the contracting party authorised to fish in the coastal state's EEZ.

- Size of the vessels.

- Type of fishing gear.

- Number of crew.

- Listing the vessels specifically by name.

- Licences only transferable under specific circumstances.

- Maximum tonnage.

- Reference to specific ownership.

- Percentage of crew compliment (nationals, etc.)

- Landing of fish in local ports.

- Closed areas.

- Quota allocations.

- Closed seasons.

- Minimum fish size, etc.

These methods are merely mentioned as detailed description thereof is beyond the scope of this.

## 2. Access fees and other forms of compensation

Authorization granted to foreign fleets to fish in coastal states EEZ's are usually subject to the payment of fees. Access fees are a form of tax which are designed to:

- extract resource rent from the fishery.

- encourage operational efficiency in the use of the resource.

- act as an instrument for the government to regulate, develop conserve and manage the fishery.

There are essentially two ways of levying fees.

a) A lump sum payable for a fixed period of fishing, i.e. one year and covering the fishing activities of all the vessels of the flag state granted authorization to fish in coastal state EEZ. The exact basis for the determination of the lump sum payment vary from country to country. In some countries it may be calculated on the basis of:

- a percentage of the value of the estimated catch per period of time

- the risk involved in developing a new fishery

- expenses incurred on placing observers on board

b) Fees may also be estimated on the basis of specific vessel gross registered tonnage actual catches landed, or on the existing fish prices.

Access fees may be demanded to be paid in cash, payable in kind or accept aid in the form of goods and services as part payment for access to its fish resources. Other forms of partial payment may also be included in agreements e.g.:

- additional financial compensation for fishery development projects;

- technical assistance and training in enforcement;

- granting of loans on favorable terms;

- training of national seamen on board foreign vessels, or in national institutions of the flag state;

- cooperation in scientific research;

- granting of facilities of a commercial nature;

- establishing of joint ventures, and

- the landing of fish for local markets.

## C. Types of agreements

Different governments may take different approaches in negotiating fishery agreements depending on their own particular local circumstances and conditions regarding their resources and their national priorities. They may differ in their approach to the context within which they conduct fishery negotiations, the form and duration of the commitments, the parties with whom they conclude agreements and the administrative mechanisms deemed desirable to facilitate the implementation of these agreements.

### 1. The structure and the duration of the agreements.

The structure and duration of fishing agreements depends largely on the priorities of the contracting parties. Agreement can be either short, medium or long term. It is however obvious that the negotiating parties view the structure and duration of the agreements from different perspectives. Short term agreements may be beneficial to

coastal states in the sense that they do not have long term commitments on unfavorable negotiated terms, but at the same time provide no long term financial benefits.

On the other hand foreign flag states seek long term commitments to ensure continued access to the resource and employment of their fleets. They however may remain bound even when the resource scarcity in the area no longer warrants the expenses incurred.

Coastal states furthermore are hampered in the development of their harvesting capacity where national fleet expansion together with long term foreign fleet access arrangements may lead to over capacity and consequently over exploitation and extinction of the resource. Most coastal states, especially those from developing countries, also find themselves becoming totally dependent on foreign exchange earnings to the extent that future development plans for self reliance becomes impossible to achieve. It would seem that agreements are more advantageous if they vary between two and five years and should nevertheless be open to periodical review.

## 2. Contracting parties

Although most fishing agreements are made between coastal states and the flag state usually in the form of general cooperation agreements, specific companies of the flag state may then directly negotiate with the coastal state through detailed subsidiary arrangements. Coastal states however, favor direct flag state participation as a contracting party in order to ensure compliance and a better

deal. Certain circumstances may however be deemed preferable to avoid direct flag state participation.

A new trend has developed in recent years whereby coastal states in a region adopt a common fisheries policy with regard to negotiating fishery access agreements with foreign fleets. Flag states on the other hand have also adopted common fisheries policies in negotiating access with coastal states, e.g. the EEC negotiates fishing rights on behalf of its member states.

### 3. Institutional arrangements

These are provided for in several bilateral agreements to facilitate the implementation of agreements in general or as a dispute settlement mechanism. These institutional bodies may be either existing or newly established bodies. These bodies are usually authorised in terms of a general agreement or of a specific agreement and include items such as frequency of meetings, perhaps annually and their functions set out in general terms or specifically. The functions may include detailed measures regarding implementation of agreement provisions, technical cooperation, stock assessment and settlement of disputes, etc.

## D. African experiences of foreign fishing arrangements: Mozambique and Seychelles as examples.

I will here briefly look at the gains achieved and problems experienced by these two South Western Indian Ocean

coastal nations in their access arrangements with foreign fleets.

**a) The expectations created by the extension of coastal state jurisdiction.**

The extended jurisdiction created by the convention on the Law of the Sea raised expectations of better management and a more just distribution of living marine resources. Since the developing countries were the driving force behind the new law of the sea convention, they were expected to especially gain specific advantages from extended coastal jurisdiction. The potential for development of their resources was great since their was poor exploitation of their own resources and the demand for new fishing grounds from foreign fleets were high. Since developing countries were not able to properly exploit and fully utilize their own resources due to a lack of technical and economic expertise, this seemed an ideal opportunity to benefit from letting foreign developed nations exploit the living marine resources in exchange for much needed financial compensation.

However, when evaluating the national fishery development of developing countries, it is not possible to ascertain definite gains for them under the new regime. Even selling of their resources to others as an alternative for those incapable of exploiting the fish themselves has not proven to have been especially beneficial. The main effect of EEZ's for developing countries so far has been the conclusion of access agreements with foreign nations allowing them access to exploit the fish resources in exchange for payment.

**b) The strategies employed by these two countries:**

Both countries are heavily dependent on their fisheries and have opted for a political strategy to revive their ailing fisheries sector and economies by emphasizing foreign participation and subsequent dependence thereon. This dependence led to them entering into various fisheries agreements with foreign countries and subsequently their traditional coastal fisheries show signs of decay.

Mozambique's strategies were based on objectives other than mere foreign exchange earnings. Their intent was also to increase local consumption and improve the living conditions of fishermen. Both national and foreign fisheries were meant to contribute towards the achievement of all the national goals. With time a complete division developed between its two fishery sectors. The artisanal sector is taken care of by its nationals with the help of foreign aid, while its industrial sector is completely dominated by foreign participation. Both of these countries have thus come to realize that the national artisinal fishery sector does not sufficiently contribute towards the attainment of national goals and thus the increasingly crucial role played by foreign interest in their commercial fishery.

**c) The gains of foreign participation**

Foreign participation in these two countries has become institutionalized through licence agreements and joint ventures. The Seychelles has licensing agreements with South

Korea, Japan, Panama and Mauritius and bilateral agreements with the EC and Soviet Union. Mozambique has licence agreements with South Africa, former Soviet Union, the EC and former GDR(1) and joint ventures with companies in Japan, Soviet Union and Spain.

The financial gains in foreign earners for these two countries in their agreements with the EC are rather low as neither of these fee payments exceed 2.5% of the value of the resource for these two countries. The main currency earnings's for these two country in fact comes from a compensation paid to them by the EC. This significantly raises the sum received to between 5 and 10 percent of the value of the resource. Both countries also include provisions in their agreements for "non financial" gains such as by-catch delivery for local marketing and employment of nationals.

Although these provisions are rather vague and watered down by phrases such as "if possible". These provisions in the agreements especially with the EC are on the whole modest, lacking in concrete commitment and not easily enforceable.

**d) The reasons for the low gains**

The most important reasons for the low returns for their resource can be attributed to two main factors, namely:

1) lack of negotiating power,

2) poor compliance.

These two factors have been concluded as the two main reasons for the failure of foreign fishing agreements in real terms for Mozambique and Seychelles. May - Kristin Ensrund, in a research report from the Fridtjof Nausen Institute in her paper explained these reasons as follows.[2]

1) **Lack of negotiating power**

An agreement, she says is the outcome of negotiation and can be analyzed in terms of bargaining power. Bargaining powers depend on the one hand on each party's general power resources (control over something that the other party wants) and on the other hand the intensity of one party's interest in something the other party controls. It is assumed that the one that is less willing to risk a non agreement has less power.

Developing countries possibly risk a "neo colonialist" exploitation, since they are generally the weaker part. Dependence, competition for the transnational firms capital and technology and the lack of alternatives are realistic considerations.

She continues by saying that the lack of qualified personnel and the reluctance on the part of Mozambique to accept foreign assistance during negotiations might possibly have resulted in an inferior position for Mozambique in the negotiations.

At one stage the negotiations had to be postponed due to a lack of negotiators on the part of the Mozambicans and that the skill of one or two persons in the fisheries

administration were crucial to what was actually achieved. Furthermore the differences in organizational capacity of the flagstate EC and the coastal states are a major setback for the latter.

Increased EC activity in the region for tuna resources has led to increased rivalry and competition between the various countries of the West Indian Ocean. The lack of cooperation on issues such as information gathering, standard formulation and common surveillance activities is the major contributor to weaken the negotiating position of developing coastal states in negotiating agreements with developed countries. The dependence of developing countries for foreign assistance will therefore continue until such countries are in the position to exploit their own resources.

2) Poor Compliance

Two essential observations are evident from the two actual agreements, namely that coastal states do not just want a purely commercial relationship with the foreign fishing nations, and second, that some of the requirements are formulated in such a non commercial way that enforcement is difficult or impossible.

Poor compliance can also be attributed to the fact that, in the case of Mozambique, a lack of infrastructure has led to poor compliance with its agreement provision for by-catch delivery for internal consumption. This failure has been attributed not so much on the low price and lack of interest of fishermen but also the malfunctioning of the collection system.

As far as the employment provision for nationals are concerned there is a general reluctance on the part of foreign fleets to employ nationals from the coastal states. This is however not surprising since, the EC subsidizes its distant water fleets mainly for the employment of European fishermen.

Both countries, due to poor enforcement and control capabilities, are incapable of accurately determining what is taken from or within their zones. The major benefits for these fisheries, especially for the Seychelles has come from the indirect gains involved. These include the spin-off effects like service, repairs and supplies which accounts for more than three times the licence fees. The lack of employment on foreign vessels has been compensated for by the rise in employment in fishery related business.(3)

Lastly, control over the fishery is lacking mainly due to inadequate qualifications of personnel and weak organizations with few resources. Both countries face serious management problems in that they conduct very little intensive fishing themselves and that they are not able to make a direct catch control.

**E. Lessons for Namibia.**

From the above cited examples the reasons for the low gains to these two countries can be seen to be the fact that they acted from a position of weakness and negotiated with more informed, skilled and organized opponents. Mozambique and the Seychelles are however mere examples in point and not the only countries in the African region to receive such low

gains from foreign participation in the exploitation of their ocean fish resources. In view of the original intentions of more equitable distribution and fairness, as intended by the architects of the Law of the Sea convention. Namibia must make a point of doing better.

The aim of extended coastal jurisdiction in terms of the convention was to grant to developing countries an added advantage in contributing to the development and welfare of their people. However, most developing countries, even those with rich fish resources, have obtained very little real benefit by allowing foreign countries to exploit their resources and consequently very few definite gains in relation to the exploited resource under the new fisheries regime. Developed countries have, due to a number of various factors, among others the poor surveillance and monitoring capability on the part of developing countries, overexploited the resources and not contributed to the development of the fishery and people. Rather they have used these provisions intentionally to derive quick and easy profits.

It is for these reasons that Namibia should avoid similar mistakes in allowing foreign access to it's resources by ensuring that they have at their disposal well informed, skilled and experienced negotiators, negotiating power, and clear and unambiguous terms and conditions of access (In this regard see further Chapter 6).

ENDNOTES.

CHAPTER 4.

(1) GDR - German Democratic Republic former East Germany. These agreements now form part of the Agreements of a United Germany in as far as they still exist.

(2) See aticle by May-Kristin Ensrund. p.57-60

(3) Ibid. "Around 300 Seychellois now work at onshore instalations on land because the Seychelles have become the chief transhipment harbour in the region" p. 60, para. 3.

# CHAPTER 5

## ENFORCEMENT OF REGULATIONS

### INTRODUCTION

Regulating a fishery is one of the management methods of conservation and forms part of the coastal state jurisdiction over the resource. However it becomes meaningless to have regulations if management is not capable of enforcing such regulations. Enforcement therefore becomes an integral part of the management functions and the different aspects of enforcement shall be discussed here.

### A. THE NEED FOR CONTROL AND THE LEGAL ASPECTS OF ENFORCEMENT

There is a need for some form of control over the fishing activities within the country's EEZ. If there is a need for regulations in achieving management objectives then there exists a corresponding need for control over the fishing effort and subsequently a need for enforcement and compliance with fisheries rules and regulations. Because of the regulatory regime for fishing the need for enforcement competence and compliance measures arises. Coastal states must therefore, due to their jurisdiction under the Law of the Sea Convention, also have the competence to enforce any regulations within it's area of jurisdiction subject to the provisions of the convention. There however, exists a need to devise methods to minimize physical enforcement actions. The question of the cost of enforcement arises and the economic principle of marginal cost equaling marginal revenue should also be applied in the enforcement context.

The legal aspects of enforcement under contemporary international law provides that Coastal states have complete enforcement authority within it's EEZ. Such authority and Coastal state competence is however restricted by Article 73 of the 1982 Convention on the Law of the Sea by prohibiting sentences for fishing violations that include imprisonment or any other form of corporal punishment. However national legislation of many coastal states provide for such penalties. Another aspect which is common for violations of Coastal states laws is the forfeiture of fishing vessels and gear. This penalty exists despite the fact that Article 73 of the Convention provides that vessels and gear must be released from custody upon the posting of a reasonable bond or other form of security. Many loopholes are apparent in this provision. How is the amount of the bond determined? Is it related to the value of the vessel and gear or to the value of the catch? Furthermore the posting of a bond of security is an indirect form of forfeiture and the inference can be drawn that although forfeiture as a direct security measure is prohibited it may still be used as a final penalty.

A further issue that arises is whether fisheries law, like other regulatory regimes, should be subject to criminal or commercial law. According to certain writers and opinions expressed at the Law of the Sea Convention in Jamaica it should lie within commercial law as it rests on commercial interest and calls for regulatory instruments suitable for commercial activity. The basis for this assumption is that criminal law demands standards of proof that are onerous and provides for penalties which are not sufficiently

discriminatory. Criminal law it is contended remains appropriate for such crimes as poaching and theft for which severe penalties including jail are suitable. But, offences against identifiable commercial interest are better controlled under commercial law with more appropriate financial deterrent and punishment that fits the crime. It should however be borne in mind that mere financial penalties are sometimes not sufficient deterrent to big financial interest who are prepared to risk being caught fishing illegally in developing countries with low penalties and especially in those instances where those countries have vast ocean areas to cover and few control or enforcement capabilities. Big financial interest then work on the assumption that their chances of being caught are minimal. This viewpoint is however not a feasible proposal in certain legal systems and need careful consideration.

## B. INSPECTIONS

Inspections form part of the enforcement function of seeking compliance with fishing rules and regulations, and further more with the apprehension and bringing charges against offenders. This task of inspectors are more easily facilitated as regards national fleet landing their catches at local ports. However, the task is much more complicated as regards distant water fleets who land their catches at foreign ports. In the case of foreign vessels with access to a coastal states EEZ it is difficult to monitor and control catches and furthermore to seek compliance with issued quotas. Various countries[1] has sought to overcome this problem by placing inspectors on board foreign vessels as

observers. However, this has not proved altogether satisfactorily as the use of observers has certain disadvantages such as the large number of personnel required with the subsequent additional cost of wages and training involved. Furthermore observers on board foreign vessels need to be dedicated and committed nationals who can withstand the temptations of bribery.

In order to determine the effectiveness of management a system of evaluation of the inspection service has to be done in terms of cost, benefits and efficiency.

1. Effort

The effort by an inspection service as regards its size and framework are mostly dependent upon the characteristics of the country in terms of geography, area of EEZ, organization structure, the size and type of the fishing industry and the importance of the fishing sector in the national economy. It is difficult to determine exactly the needs, level and dispatching of control services in any given country and countries developed yearly from their own experiences, different systems with varying degrees of success and efficiency.

At present the most reliable method of evaluation seems to a comparison of the cost of the system with the turnover of the fishing industry.
i.e.
UK. 1981
£22 million - cost of system
£229 million - turnover

**Reason-** The UK has a comparatively small national fleet with big fish stocks which are exploited mostly by other EEC countries and therefore the high cost of surveillance and monitoring.

**France.** 1981 ff 650 million-turnover Cost estimated at less than 2%

Reason -low cost is that about 60% of French catches are made abroad and subsequently they do not contribute to the surveillance and monitoring cost which is paid by the country in whose waters they are fishing.

## 2. Efficiency.

Managers of the fishing industry wishes to know the level of success of their services, enforcing fishing rules and regulations. There are however, no hard and fast rules for evaluating the efficiency of their enforcement services. There is thus no one good method but only an accumulation of signs such as the following:

- Scientific surveys
  overfishing may lead to decreasing stocks and thus a lack of control. This is however, no clear indication but a relation may exist and is therefore assumed.

- The number of inspections at sea.

- The ratio
  the number of registered fishing vessels/number of inspections.

The number of detected fishing vessels/number of inspections.
The number of fishing patrol vessels (or planes) engine hours/number of inspections.
Number of sentences/number of breaches, etc.
Evaluation of these factors.

These factors although not conclusive may be indicative of the efficiency of the inspection service and the theoretical basis for improvement.

3. Proof

One of the main task of inspectors for the laying of charges for fishing rules and regulations is the gathering of sufficient evidence to bring charges which may lead to a conviction in court for violations.

Inspectors should furthermore be properly trained for their task as it is becoming more and more difficult to prove charges in court. Fishermen have learned through experience to contest the facts presented in court as regards the position of the ships, the area, the procedures, etc.

Another factor for consideration is the question as to what is admissible evidence as some countries do not accept photographic proof of air surveillance as evidence of violation. In most criminal legal systems the burden of proof rest on the prosecution and this may prove difficult to discharge. A way out of this dilemma would seem to be to shift the burden of proof on the accused. This could be

achieved by introducing a separate set of evidentiary rules specifically applicable to fishing violation.

### 4. Penalties

Penalties are determined by the courts and may vary between the minimum and maximum prescribed penalties provided in the law. However, the penalties laid down in the laws of different countries are not sufficiently high to act as a meaningful deterrent in violation of fishing rules and regulations.

In the UK the low penalties laid down by the law have proved to be a frustrating issue for fisheries enforcement officers. Too often fishermen will risk fishing illegally or violating fishing rules and regulations as they are prepared to pay the low fines imposed by the courts as compared to the possible financial gains of a good valuable catch.

Another point worth mentioning is the fact that in most countries judges and magistrate are not sufficiently trained and interested in fisheries law. Court cases for fisheries violation are dealt with in the course of a day's proceedings in criminal courts by judges and magistrates more versed and interested in other criminal issues such as theft, robbery and murder.

The result hereof is that fishery cases are often dealt with on as a routine business by judges and magistrates and not sufficient priority given thereto in criminal courts. It is submitted that fisheries cases be separated from ordinary criminal cases and tried by separate tribunals well vested

and experienced in fisheries laws. However it is recognized that is may be impractical in most countries and not cost effective due to the small amount of violation of sufficient severity to justify criminal proceedings, and the ratio of fishery cases compared to other criminal cases imbalanced.

Further it is important to note that in cases where penalties are too high inspectors may be reluctant to prosecute due to the problems that such high penalties create. The rigidness of penalties should be avoided by granting penal discretion to judges and magistrates. High penalties may lead to an exit out of the fishing business as fisherman in most instances are unable to pay. Flexibility in the license system could also be used as a means of punishment for fishery offences. For example a violation on a hake quota may lead to the withdrawal of that quota while maintaining the quota on another species. In this regard a point accumulation system leading to total forfeiture is recommended.

## C. REQUIREMENTS FOR ENFORCEMENT

### 1. Enforcement Tasks

Management objectives, policies, rules and regulations become operationalized through enforcement. Physical enforcement of fishing rules and regulation may be regarded as part of the executive functions of management. In most countries of traditional and overexploited fisheries, enforcement is generally directed at protecting, controlling and conserving the resource and also in resolving conflicts

between various interests groups of fishermen (in a directed fisheries).

In the case of non-traditional and under-exploited fisheries enforcement is applied to prevent and address illegal fishing activity. At all stages of fisheries development, an additional management aspect of enforcement is the collection of information and the storage of data in a timely, accurate and orderly manner as it is this data which forms the basis of future management decisions - enforcement includes the following tasks:

a) Preventing unlicensed vessels from fishing in a country area of jurisdiction and ensuring that licensed vessels comply with the provisions and conditions of the licence;

b) Ensuring that fishing areas or zones established for specific sizes of vessels or gear are protected from other fishermen, i.e. certain specified inshore or nearshore areas;

c) Eliminating or minimizing the use of prohibited gear and destructive or harmful fishing practices; and

d) Protecting spawning, breeding feeding areas, endangered species, and other areas closed for harvesting.

**2. Specialized equipment for enforcement.**

Equipment needed for enforcement in vast areas are highly specialized and capital intensive. Not only is the capital cost high but also maintenance costs. The type of

equipment required may vary from country to country and depends on the particular needs of that country as well as the geographical area involved. The equipment must be selected with care and should be suited to the particular conditions prevailing in each country. However, heavy capital expenditure is necessary for meticulous and sophisticated enforcement. Also in this instance the economic principle of marginal cost equaling marginal revenues are also applicable in the determination of the equipment needs. Equipment needs for enforcement may include among others the following:

a) **Patrol vessels** - larger, long range, more enduring ones with more powerful equipment for offshore and smaller, lighter ones for inshore work.

b) **Aircraft** - with low-flying capabilities for accurate detection and large area coverage.

c) **Radio communication** - to allow continuing coordination among enforcement officers. An encrypting system is essential.

d) **A coordination centre** - for coordination between patrol vessels, aircraft and enforcement officers and office space for personnel data input and collection

- for decision making such as arrest and prosecutions
- for instruction and planning for day to day work as well as for long term.
- as a reference centre

e) **Vehicles** - for land mobility and storage areas for vessels and gear seized in the conduct of enforcement.

### 3. Specialized skills required for enforcement

Enforcement personnel should be well trained in order for them to efficiently and effectively execute their various tasks and duties. They should therefore acquire or develop the following skills.

a) **Surveillance** - The gathering of intelligence over fishing activities and landing of catches.

b) **Arrest and seizure** - including training in obtaining and preserving evidence for later court action.

c) **Prosecution of offences** - assist State Prosecutors in the presentation of the case and act as expert witnesses.

d) **Familiarity and training** in fisheries and maritime law and regulations.

e) **Adeptness** in the operation and handling of enforcement equipment.

f) **Data collection and monitoring** pertaining to vessels, their gear catch, and activities as well as to states with vessels in the area.

g) **Extension and information dissemination** to facilitate understanding by fishermen of fishery laws and regulations.

h) Public relations orientation to facilitate good rapport and cooperation with fishermen.

## D. PROBLEMS OF ENFORCEMENT, IMPLEMENTATION AND EVALUATION OF MANAGEMENT.

The most singular problem of enforcement implementation is the high cost of equipment, maintenance and skilled manpower. However, high cost is a necessary expenditure for a meticulous and sophisticated enforcement system, especially for those states where the fishing industry plays a crucial role in the overall national economies.

Cost must be weighed against the benefits gained from enforcing the particular regulation and country's enforcement needs. Licensing of fishing vessels, and the declaration of open and closed fishing seasons are two of the main methods of monitoring the level of fishing efforts. Port authorities may also assist in the monitoring of catches landed in local ports to determine whether catches exceed the quota for a particular species caught. Air surveillance and radio communication may also assist in ensuring that vessels are fishing within allocated zones.

A further aspect is that there is no sense in introducing fisheries rules and regulations if they are not capable of being effectively implemented in order to achieve management objectives. There is also no guarantee that rules and regulations once adopted will necessarily be carried out correctly. Furthermore, some rules and regulations are

extremely difficult to enforce and require the necessary backup systems for effective enforcement.

Coastal states have originally tried to control foreign fishing efforts but have come to realize that not only foreign fleets but also their own fishermen are equally capable of damaging the fishery resources if uncontrolled. It is recognized that full control is not possible but that acceptable levels of infringement must often be made as a compromise. This may however have an influence on the quota levels and therefore a percentage of the quota should be retained to allow for illegal catches. Last, but not least, penalties for violations must be weighed or balanced against the aim of regulations, which is to deter. However, although heavy penalties may act as a deterrent they may be of little value if the system for detection and apprehension is not in place.

## E. REGIONAL COOPERATION; THE REASONS FOR IT'S FAILURE

Regional cooperation has already been thoroughly discussed in various papers and articles by numerous writers but has for most regions remained an unattainable goal. Many regional programs in a variety of areas have already been started but very few have actually come to fruition. Generally only some meaningless conferences and meetings of stated objectives occur without any truly positive actions.

The concept of regional cooperation has become an accepted strategy for economic and social development especially in developing countries so why have so few come to

actual fruition? I will briefly look at what I believe to be the main reasons for the failure of regional cooperation schemes, especially in Africa.

Most regional cooperation schemes in Africa failed due to the following:

1. Lack of true commitment
2. Lack of organizational structures and political infighting
3. Lack of continuity and dependence on sponsorships
4. National self-interest and short term objectives

**1. Lack of true commitment**

True commitment at the higher levels of government is one of the most important reasons for the failure of regional cooperation agreements specially in Africa. Many wonderful plans and objectives has been formulated by a number of regional or sub-regional groupings yet very few of those objectives are ever achieved or led to any positive action. Too often, low level government officials with no real authority and sometimes very little experience in the particular arena are sent to attend such meetings many of whom do just that they merely attend but do not even actively participate.

This attitude of African governments seem to be evident even at international forum such as IMO, etc. but they rarely contribute or even actively participate in the actual proceedings leading up to the final decisions. Many of these

delegates are not even well versed and informed about the subject matter under discussion. Yet they attend year after year sometimes at a great expense merely to accept plans and decisions already made without an inkling of whether their own interests has been protected.

Regional programs can only succeed if there is true commitment at the highest governmental level to put into action their stated objectives. True commitment includes not only political commitment but also financial commitment to ensure positive action. Objectives will remain merely objectives if the necessary machinery for implementation is not provided. Sometimes new structures are created where existing ones can fulfill the same functions leading to unnecessary duplicity. Careful planning at ministerial level should include as part of the ministries budget a portion for the attainment of regional cooperation objectives. The commitment to provide the necessary financial and material resources for implementation of regional programs should go side by side with the political commitment. Long term planning and coordination of efforts at the top level of government can make the concept of regional cooperation an attainable objective. Too often regional cooperation programs are used as a means of political expediency and doomed to failure.

**2. Lack of organization and political infighting**

Most developing countries lack the ability to organize themselves into well planned meaningful organizational structures and effective power brakes. A regional approach to cooperation in these areas such as fishing can indeed be a

powerful negotiating tool especially for those countries in close proximity to each other and who share similar fish resources. Poor organization and the lack of a common approach will continue to be detrimental to countries who negotiate access agreements with well organized foreign fishing interest.

The lack of a common fishing access approach by developing African countries, and their lack of organization has led to overexploitation of their fisheries resources and low returns. Well organized foreign interests are therefore seen to easily manage to play one government against another and thereby obtain most favorable terms of access with no real or very low returns for the exploitation of their fisheries resources. An effective common regional approach can go a long way in eradicating this sad state of affairs.

Poor organization and political infighting has led to the demise of some wonderful cooperation schemes. Some countries simply lack the ability to organize themselves effectively due to various factors such as lack of skilled managerial and organizational personnel in positions of authority due to political appointments in government positions. Political appointments in high offices of government with little skill and experience leads to a situation where actions are based on political short-term expediency. Political infighting, self gain, and self interest for advancement of individual stature and position within regional structures too often leads to the formation of organizations where little is achieved and no decisive positive actions are accomplished.

This furthermore lead to a situation that there are too many regional organizations with overlapping functions and objectives. To date it is still uncertain as to what, other than many far fetched schemes and a lot of lip service, are really achieved by organizations such as Preferential Trading Area and Southern African Development Coordination Conference The functions and objectives of these two regional cooperation associations for Southern Africa overlap. Even though this has been recognized for many years, very little effort has been made to rationalize their respective purposes if any. The combined cost of keeping such organizations in existence with very little positive action is a waste of time and money that could surely be put to better use.

### 3. Lack of continuity and dependence on sponsorships

Many development programs sponsored by U.N. organizations and other non-governmental institutions have come to a collapse in developing countries as soon as the period of sponsorship comes to an end. As soon as the foreign donors withdraws their financial and technical assistance from a project, then the project itself comes to an end in complete collapse. The main reason for this lack of continuity is due to the lack of planning by the governments to provide for the necessary resources to continue such projects. Any program, no matter how successful will collapse as soon as the resource base for operations are withdrawn.

The same applies to regional cooperation in fisheries. Initially, governments could use some sponsorships or donors both financially and technically. But, they must plan

beforehand for the continuation of such a program once the initial donors withdraw. The necessary financial support structure must be maintained in order to implement and maintain such regional cooperation programs. The main aim of a regional or sub-regional fisheries cooperation program should thus be towards eventual self-reliance in order for such a program to be positive and effective.

**4. National self interest and short term objectives**

Regional cooperation programs should be based on common interest and objectives. By the pooling of resources in matters such as fisheries management, surveillance and monitoring, duplication can be avoided, cost reduced and effective enforcement achieved. (See chapter 6 B)

Short term national self interest has led to the demise of potentially meaningful and worthwhile regional cooperation programs. Instead of exploiting those things which they have in common, countries within the same region too often adopt short term policies whereby their resources become overexploited, at times very quickly and to the extent that they may never recover. By competing with each other instead of cooperating and adopting a common approach, many countries soon find themselves in the situation where their commercial fishing sectors are dominated by foreigners and they become totally dependent on them for their foreign currency earnings. Even such short term financial benefits will disappear once the resources are depleted and the foreign fishing interest moves on to more productive fishing grounds.

## F. EXPERIENCES ELSEWHERE AND THE SOUTH PACIFIC ISLANDS AS AN EXAMPLE OF SUCCESSFUL REGIONAL COOPERATION.

Most fishing nations of the world find it extremely difficult to have an effective enforcement service due to the large costs involved. The methods employed and equipment used vary from country to country according to local circumstances and peculiar difficulties. It is even more difficult to decide on a single method and which equipment is suitable in a particular country.

### The United Kingdom

In the U.K. the enforcement of fisheries law and regulations reside with the Ministry of Agriculture, Food and Fisheries or MAFF. Enforcement in the UK is both a military and civilian operation. Sea patrols are carried out by the navy due to historical reasons and more specifically as part of that countries overall security objectives. Air surveillance on the other hand is carried out by an independent company on a contract basis with the MAFF. Both components however, act under the authority control and direction of the MAFF. The MAFF headquarters in London act as a coordination centre from which all operations are planned and directed, MAFF furthermore has regional inspectorates for inspections of landing at local ports.

### The U.S.A.

In the USA the enforcement role of fisheries law, rules and regulations is a purely military operation by the U.S. Coast Guard. Both sea patrols and air surveillance are thus

done by the coastguard. The US coastguard has amongst others, the function of fisheries law enforcement. The reason for the use of a military operation is because the coastguard has amongst its other functions the function of guarding the US coastline for reasons of security, smuggling, illegal immigration etc.

**The South Pacific Islands**

The South Pacific Islands of Papua, New Guinea, Kiribati, Solomon Islands, etc., carry out a common fisheries enforcement program under the umbrella of the South Pacific Fisheries Forum, through technical assistance from the U.N.'s FAO organisation. The success of the South Pacific Islands in successfully implementing a regional enforcement program and common fisheries policy can be attributed to various factors.

First of all the South Pacific Islands has been especially favored by the extended EEZ jurisdiction under the law of the sea Convention. More than anything else its unique geographical location and extended jurisdiction favored these island states as it's limited land territory now extends seawards. Secondly these island states are largely dependent on their fisheries resources as a source of food, a major earner of foreign capital, or as more concisely stated by Peter Vargese:

> ".... effective maritime surveillance is as much a question of economic security as it is of law

enforcement. Maritime surveillance capability is so important to the island states because marine resources are so crucial to their economies."(2)

In an article, Don Aldous, from the department of Fisheries and Oceans, Halifax, Nova Scotia the Forum Fisheries Agency (FFA) for the South Pacific Islands came into existence and operates as follows:

"A convention was drawn up and was acceded to by the twelve Forum members of the time in October 1979. The convention established the agency to promote regional cooperation in various aspects of fisheries with the benefits from the living marine resources of the region for their peoples and for the region as a whole and in particular the developing countries."

More specifically: "The work program of the FFA covers the harmonization agreements; fisheries surveillance and enforcement; current information services; tuna... fishing development; economic analysis; fishing patterns; fisheries and administrative training; regional fisheries register; the delineation of fisheries and related zones." (3)

The operations of the FFA are still largely sponsored by donor organizations.

Don Aldous continues further to argue that the surveillance needs of the island states are unique as to their geography, "as much of the region remains uncharted in modern times". This presents problems of navigation in the area. Surveillance of the EEZ's of these island states

therefore raises unique problems. The population and industrial base of the region cannot support the large expenditure and supporting infrastructure necessary to maintain an extensive surveillance program. The island states therefore decided to set for themselves realistic goals for surveillance of their EEZ's, "recognizing the vastness of the zones and the availability of funds, manpower and equipment the island states cannot afford to mount extensive, sophisticated programs. They will however, need some capacity to enforce their rightful jurisdiction over fishing nations. This starts at the negotiating table. The terms of an access agreement must reflect the coastal states ability to enforce the agreement. For example, if it is not possible by any means to verify the quantity of fish caught then it would make little sense to limit the catch of foreign fishing vessels to a quota."(4)

Hardware or equipment is therefore a necessary expense in order to provide some measure of enforcement capacity appropriate to the conditions, needs and capabilities of the island states. Furthermore training programmes should be geared to providing knowledgeable and capable administrators in the future.

Regional cooperation has been achieved among the South Pacific Islands by adopting the following.

1. A regional register of fishing vessels.

2. Common criteria for access to EEZ's.

3. An FFA surveillance program

- The Pacific Patrol boat project.
- Regional Air Surveillance.

4. Regional Observer Program.

5. Surveillance Officials Meetings.

6. National Program Development.

7. Regional Telecommunications project.

8. Regional Information Systems.

9. Training Programs.

10. Regional Surveillance Center.

Through a system of regional cooperation the Pacific Island States under the FFA created a powerful administrative tool in controlling the fishing activities of foreign fishing vessels in their waters.

By adopting a common approach and banding together they have had more success in their power of negotiating with foreign fishing nations. By banding together they have eliminated the risk involved of entering into separate negotiations by each member government. Foreign fishing interests are merely interested in negotiating the cheapest most beneficial deal and control negotiation by playing off one island nation against the other.

ENDNOTES.

CHAPTER 5.

(1) For example the South Pacific Island states under the Foreign Fisheries Agency (FFA)

(2) Peter Vargese. p. 150, para. 3.

(3) Don Aldous. p. 154, para. 6.

(4) Ibid. p. 155, para. 1.

(5) Ibid. p. 155, para. 5.

# CHAPTER 6

## A. CONCLUSIONS

The effective and successful implementation of a policy for EEZ management should include a full range of the following ingredients.

(1) The delimitation of the EEZ and continental shelf vis-a-vis opposite and adjacent states. This would require a sound knowledge of the resource, both living and non living as well as their relative value since such knowledge would have a significant influence on the negotiating power of the parties involved.

(2) The development of a fisheries management system. Such a management system should include both internal and external factors such as;
- control over foreign and domestic fishermen,
- negotiation of joint ventures for production, processing and marketing,
- setting of biological and socio-economic objectives,
- protection of the interest of local fishermen.

(3) This policy for EEZ management further requires knowledge of the following;
- trends in the distribution and abundance of the fish resources,
- responses to fishing pressure,
- location of spawning and times,
- distribution of catches and fishing effort by area,
- surveillance and enforcement capability,

- comprehensive national fisheries legislation,
- trained human resources.

The Namibian Government should furthermore develop an integrated ocean management plan whereby all the various actors and sectors in ocean use are identified and their input into the plan accommodated. This is very important since Namibia's marine policy cannot develop in terms of fisheries alone. By developing an integrated marine and ocean policy and plan potential multiple sea use conflicts and complimentaries can be identified and existing and potential sea use problems avoided. Such a plan must look at potential conflicts between the various actors such as fisheries, the marine environment, coastal zone management, shipping and navigation, possible energy development, pollution etc.

## B. RECOMMENDATIONS

### 1. Regional cooperation as a strategy for economic development

The South Pacific islands under the umbrella of the Forum is perhaps the only example of regions of developing countries where regional cooperation in fisheries management can be said to have worked. Due to the commitment on the part of the member countries, a truly common workable approach has been adopted, not only for fisheries management, but also with regard to access.

It is hereby submitted that a regional cooperation within a Southern African Cooperation should be based on some of the principles of the South Pacific model. Regional surveillance and control of fishing activity can be more effectively implemented between countries immediately surrounding Namibia specifically a democratic South Africa and a peaceful Angola.

The South Pacific, in conjunction with FAO and other sponsorships, put into place the Foreign Fisheries Agency which has created a successful regional program of fisheries management by adopting common policies, and by harmonizing the following terms and conditions of access:

(a) Subscription to the Regional Register of Foreign Vessels

(b) Licensing procedures and the functions of authorized personnel (observers)

(c) Catch reporting and maintenance of log books

(d) Timely reporting of catch

(e) Entry to and exit from EEZ's and the identification of licensed vessels, etc.

It is thus suggested that Namibia, South Africa and Angola should explore and implement such a program of harmonization as a licensing policy objective for the region. True commitment on the part of these countries through initial high level authorized meetings should seek to implement a regional fishery program. The above mentioned

terms and conditions of access could be negotiated and implemented as initial steps for regional cooperation. Other aspects of fisheries access such as methods used for determining fees, can be harmonized through time.

A workable agreement can certainly be negotiated by using donor organizations such as the FAO and their experience as a point of departure. It is further submitted that the data collected and stored by the former International Commission for South East Atlantic at FAO headquarters should be used and activated as a basis for starting such a regional program.

Regional cooperation could eventually be implemented in other related areas such as enforcement, pollution and general security.

## 2. Resource Management and Regulations

As was seen in Chapters 2 and 3, fisheries resource management objectives are to exploit the living resources of the oceans in a sustainable way through the implementation of various measures and regulations. The various measures that could be adopted have already been discussed in detail. However, it is important to stress certain issues that need consideration. The objective of management is further taken to be the optimum utilization of the resource which contain two basic elements, namely

(a) extracting the maximum net benefit from the resource, and
(b) the distribution of cost and benefits in such a manner as to be acceptable to all participants.

When referring to maximum net benefits from the resource it is necessary to deal with it in terms of both the total benefits that can be produced as well as the total cost involved in their production. Benefits therefore refer to all values to society that can be produced from the resource. When one considers the production aspects of the resource the conservation measures are deemed to imply ensuring desirable levels of supply from the resource and this can only be achieved by taking into account the cost and benefits associated with achieving it. It is furthermore important to consider not only immediately obtainable benefits but also future benefits.

The cost which should be considered here is management cost external to the operations and includes such cost as information necessary for management, and of ensured compliance with management measures and regulations (monitoring, control, surveillance and the judicial processes). Also to be considered is transaction cost (the cost of negotiating agreements, formulating, implementing management measures). Thus there should be an equilibrium between the benefits from the resource and the cost. Formulation of management measures serves no purpose if they are not capable of being effectively implemented and enforced.

Furthermore, the satisfactory fulfillment of management cannot be achieved without the three basic functions of management namely:

1. Information acquisition
2. Control over production and the inputs of capital and labour (regulation), and
3. Enforcement.

Consideration should also be given to the allocation aspects of management. The objective of allocation should be to arrive at an acceptable pattern of distribution. The acceptability of the distribution arrangement is an important factor for stability within the system as it would ensure that those who are affected by the arrangement shall feel that they are better off by complying with it than breaking the arrangement.

In this regard it is submitted that a platform should be created in Namibia to cater for continuous dialogue between administration, industry and fishermen. It is thus proposed that a Fisheries Consultative Council be created to facilitate such dialogue. Various problems in the fisheries sector such as management objectives, measures, regulations and problems could be discussed and continuously evaluated. Such a representative council will ensure better understanding of management measures and compliance with regulations. Fishermen are more likely to comply with measures which they regard as acceptable and fair than with those that are merely forced on them.

Finally a method is suggested whereby a gradual Namibianization of the national fleet can be achieved while at the same time controlling the fishing effort. In Chapter 2 (1.2) on the regulation for controlling the fishing effort has been briefly touched upon. This has however been merely

a brief description of what it entails. The need for controlling the fishing effort is necessary for reasons of conservation and sustainable resource development on the one hand, and to prevent overexpansion of the fleet and overinvestment on the other. In my opinion there are two further reasons, namely the Namibian interest and that of the Namibian population. It is submitted that Namibia has the unique possibility to adapt the fishing effort to the resources. In order to achieve this, fishing agreements with foreign fleets to exploit the fish resources should be regarded as an interim measure and should be planned and directed as such. These fishing agreements with foreign interests should thus be for short tender with reservations for renewal and must then be followed by a timescale for Namibianization of the fleet in order to attain the ability to exploit the resources ourselves and at the same time to promote and extend the local processing industry. The French governments shrimp fishery policies, introduced in 1982 in French Guyana, determined to pass the shrimp fleet under the French flag and can serve as an example in point for the gradual Namibianisation of the fleet. The French adopted a policy whereby one foreign shrimper must leave the French Guyana waters when one French shrimper is entering within the French Guyana fleet. The effect of such a policy is to gradually reduce the foreign participation while increasing local entrants by not renewing one licence of a foreign vessel for every new vessel entering the national fleet. Thus on a one to one basis the foreign participation is reduced and local participation increased while at the same time the fishing effort is maintained at acceptable parameters. This policy also caters for those instances where such foreign vessels comes under the Namibian flag and will thus be

regarded as part of the Namibian fleet. Namibianisation of the fleet could be achieved by using a similar method.

### 3. Access Arrangements.

As we have seen (Chapter 4) the principles governing access arrangements are derived principally from the concept of managing a surplus of stocks whereby and the extraction of a resource rent for the utilization of the resource can be effected. Access is therefore a method for sharing a resource and the benefits to be allocated to participating states is essentially a matter of negotiation.

Most fisheries access arrangements to foreign fleets originate either as bilateral, multilateral or joint venture arrangements. The governments of the states involved are usually the initiators of such arrangements. Such agreements are then implemented through foreign fishing operators or through other forms of licensing systems.

It is therefore evident that careful but decisive negotiations are the cornerstone to success. If one considers the Mozambique/Seychelles experience (See Chapter 4) the reasons for their failure are obvious due to the factors mentioned. The failure of the access arrangements of these two countries in their agreements with foreign states were mainly due to poor negotiations on their part and non committal provisions in the negotiated text, the latter creating loopholes for non or poor compliance.

It is therefore imperative that such negotiations be conducted by knowledgeable, well informed and skillful negotiators. The text of agreements should be worded in such a manner as to be certain of its interpretation and to exact true commitment on the part of the parties thereto.

Further, careful consideration should be given to agreements in the form of joint ventures. Joint ventures have become a popular means of developing a particular sector of the economy where the state lacks the necessary capital, skills or manpower to develop a resource worth exploiting. In fisheries, such joint ventures are usually undertaken where the coastal state has a valuable resource in its EEZ but lacks the technical expertise or capital to fully exploit this resource. Joint venture agreements can therefore be utilized as a means of obtaining foreign capital, or management, or technical skills, or the necessary equipment. Such an arrangement can further include provisions for local control over activities of the venture, transfer of technology, and training of local personnel.

The concept of joint ventures can provide an alternative idea or solution for instance countries which have fisheries resources and wish them to be ultimately exploited by their own nationals but in the interim are unable to do so. However, seemingly These apparent attractive advantages of joint ventures in fisheries are often based on misunderstanding, false expectations and lack of true commitment and compliance. Various reasons for the failure of such joint ventures have been cited elsewhere and are quoted here.

W.R. Edeson in his article "Agreements for Exploitation of EEZ Fisheries" explains some of these misconceptions and false expectations created by joint ventures when he says:

"Despite its apparent advantages, the joint venture system, in fisheries such as in other sectors, has had a chequered career. In part this is due to false expectations by one or both parties. The State with the exploitable resource for example might expect to gain control over the activities of the venture because it (or its nationals) has a majority holding in the capital share of the venture. Often, however, this control has proved illusory because the overseas partner has important de facto controls through its greater management expertise. Sometimes this agreement itself may disguise the real level of foreign control. Where for example decision making may be vested in foreign managers, under a management agreement, or in an executive committee which is in effect a veto on the more important decisions. Another difficulty has been differing perceptions about the same agreement - the coastal State partner often seeing it as an agreement about transfer of technology, training manpower, etc., while the foreign partner might see it only as a devise for gaining access to a particular fishery, while looking on the conditions imposed as irritants perhaps to be given token observance only.

A complicating factor can occur when the government of the host country may have certain objectives when it permits joint ventures to be set-up, but these objectives are not necessarily shared to the same degree by a local private enterprise partner. The government, in allowing such a venture might, for example, intend that a transfer of

technology should occur, or that local persons should be trained in relevant fisheries skills, while the motive of the local private partner might be simply to make a quick profit.

Not least among the problems that may be encountered is the possibility that very complex business relations can be set up to manipulate profits in such a way that the coastal State partner obtains practically nothing, while the foreign partner, through such techniques as affiliated company transactions and transfer pricing, or through the manipulation of company capital and related loan agreements, maximizes its profits. Woven through these factors, are inevitable risks of misunderstandings based on differing cultural assumptions between the parties. Clearly, therefore, if joint ventures are to have any real chance of success, they will need to be planned and negotiated with considerable care.

In addition, it is vital that the government should have a clear idea just what it wants to achieve by a system of joint ventures in fisheries, and that its views are communicated to and clearly understood by all parties. Publication by a government of the guidelines or objectives or minimum requirements can be very useful in ensuring that several of the pitfalls mentioned above are avoided.

Finally, it is unlikely that a joint venture will be of much benefit to a country unless there exists in the private or public sector an entity which is able to take an active part in the venture and which can both benefit from and absorb the benefits of participation.

At the risk of over generalizing, it does seem that experience over the last ten years in the area of exploiting EEZ fisheries by the use of joint venture mechanisms is doing much to reduce the misunderstandings between the coastal state and the foreign entity, with the result that they are more likely to be negotiated and assembled in a more realistic environment than has always been the case hitherto. There are however many advantages in the forming of joint ventures and the above quotation is merely used to illustrate that despite their apparent attractiveness joint ventures have many pitfalls."(1)

Finally, it is important to note that Namibia would be well advised not to repeat the same mistakes as those made by Mozambique and the Seychelles(See Chapter 4). As Namibia enters fishing venture negotiations with foreign countries Namibia should ensure that:

1) Their negotiators are well informed persons about all aspects of the fisheries trade in issues such as market prices, state of the stocks, and the existence and comparative knowledge of similar types of agreements elsewhere. Being well informed can be a powerful tool in negotiations and enhances ones negotiating power;

2) That the skilled, knowledgeable and experienced persons on their fisheries negotiating teams includes persons educated in a variety of disciplines such as the law, the economy, finance, and fishery research;

3) The terms and conditions of the agreements are well worded and clear as to interpretation without ambiguity. This is essential to ensure compliance; and

4) Their negotiating team is well prepared and backup by a well defined plan that includes a harmonized system of access arrangements; this can provide tremendous advantage to their negotiating power.

## 4. Enforcement

I will here briefly touch on two important aspects namely that of inspection and surveillance. As Namibia is a young nation it would be virtually impossible for her to undertake an extensive surveillance and enforcement program on its own. The reason for this is simply because cost of surveillance and monitoring equipment is costly, properly trained personnel are few and the sea with its 200 mile EEZ is vast, covering approximately 1800 to 1900 km.

Due to the above reasons a regional approach for law enforcement of its EEZ and controlling and managing its fishery resources would seem a logical solution. Namibia, South Africa and Angola share common boundaries and resources and a regional surveillance, monitoring and patrol system would be an effective tool and method for control over foreign fishing operations, apprehension of illegal fishing in the region and the sharing of cost of equipment and personnel.

Regional cooperation can actually be started with the exchange of information on shared stocks and coordination of access conditions within the region. Regional enforcement can be implemented through exchange of information regarding the vessel movement and may later lead to shared surveillance facilities and to regional sanctions.

The following plan of action is hereby proposed for the implementation of a regional surveillance, monitoring and control program.

## 4.1. Planning a Surveillance and Control System

When planning an enforcement system of surveillance and monitoring, the following issues should be carefully considered.

4.1.1 That the primary aim of a control and surveillance program should be the establishment of a data base for fisheries intelligence. In order to design and plan a system all available sources of information on the fisheries should be used, exchanged, pooled and constantly updated by all participants in the regional program.

4.1.2 All regulations should be practically enforceable. The effectiveness of any control system will be in direct relationship with the caliber and training of the personnel involved. They should have a close knowledge of the fishery both in order to plan operations and to spot possible offenses. Inspection

enforcement personnel should have a high degree of skill and seamanship and avoid any undue use of force in order to maintain credibility.

4.1.3 Great care should be taken in the choice of sanctions applied for the various offenses in fisheries legislation. Legislators have to be careful in imposing sanctions out of proportion with the offense. The degree of seriousness of the offense should be well defined and appropriate sanctions imposed. Careful study of the implications of the seizure of vessels' catch and gear should be made. In cases of seizure, it is often preferable to allow the owner to purchase back the vessel at reasonable cost in relation to the value of the vessel, catch and the gear since the cost of maintenance and storage could be high.

## 4.2. Initiating a Regional Program

Regional cooperation in surveillance, monitoring and control could be initiated by Namibia, South Africa and Angola by setting up a regional surveillance and enforcement meeting enjoining the full support and commitment of their member governments. The purpose of such a meeting would be to promote regionalism in fisheries surveillance and monitoring in the south east Atlantic. Initial discussion should be initiated by high ranking officials with authority preferably over ministerial level in order to obtain true commitment. Topics for initial discussion should include:

1. Patterns of foreign fishing in the region
2. A regional air/sea surveillance plan
3. Legal implications, i.e., evidence
4. Regional communication gathering
5. Training of personnel
6. A framework for future discussion and cooperation
7. Setting of a permanent time table for continuous discussion between regional surveillance officials.

## 4.3. Implementing a Regional Surveillance, Control Monitoring Program

### 4.3.1 A regional observer program

A regional training and education program should be implemented to facilitate uniformity in the application of rules and regulations and to specify the functions of observers and inspectors within the region. Observers can be placed on board foreign vessels for purposes of monitoring catch and for the collection of biological data. The design of the program can be implemented through discussions between government and industry officials. The program can be implemented through training courses, manuals, etc.

### 4.3.2 A regional surveillance and monitoring centre

To operate as a coordination centre through a regional telecommunication network and information systems. Secure and a reliable communication are needed on national and regional level and to undertake efficient and timely surveillance program and develop a regional data bank to

benefit the members. A telecommunication system is required using the latest technology which is reliable, easy to install and operate and cost effective. The development of such a regional database should preferably be separate from existing public standard telephone links which is usually slow, costly and inefficient and prone to interruptions and interference which hampers good communication. The regional database will furthermore enable member governments to update and access information from national centres. The possibilities of new technology such as remote sensing and Inmarsat should also be considered.

An information system on the other hand is needed to back up fisheries laws and agreements. Monitoring programs where foreign vessels submit zone entry, zone exit and weekly catch reports and even daily position reports from each vessel fishing in the zone. Data analysis by administration further needs the assistance of computers for summary reports and analysis of data concerning the fishing effort and catch. Computer units should be in place and the development of the necessary software can be achieved for EEZ management through assistance from donor countries.

### 4.3.3 A regional register of fishing vessels

For all foreign vessels applying for licenses, regional observers, a catch and effort form, reduced reporting and common vessel identification requirements. A regional blacklist of offending vessels can be complied and continuously updated with some sort of information system for regarding Ie, changes in vessel names, owners, etc.

### 4.3.4 A regional surveillance program

Furthermore, through the pooling of resources of equipment and personnel regional air and sea patrol program can become affordable. (see section on surveillance equipment) From the list of equipment needed for an efficient system is evident from said list and as mentioned a capital intensive project and therefore great care should be exercised in the selection of equipment for such a regional surveillance and monitoring system. The monitoring control and surveillance requirements and operational needs for such a system should be carefully evaluated under operational conditions before the commitment of capital resources. Equipment in the region should also be compatible to avoid operational problems. Proper pre-planning and evaluation can help to avoid inappropriate or even unnecessary expenditure e.g., air craft range found to be inadequate, speed of air craft too high to permit observers to work or the system is found to be too expensive in relation to returns from licenses, etc.

The surveillance project should further be design with the following main objectives:

1. Provision of technical advise to member governments
2. Promoting and coordinating fisheries surveillance programs
3. Collation of reports on vessel activities.

## (C) THE WALVIS BAY ENCLAVE AND SURROUNDING ISLANDS - AN IMPORTANT FACTOR.

Walvis Bay on the west coast of Namibia is the only deep-water harbour in the territory. A second harbour exists further south at Luderitz but does not have the same water depth and does not have the same facilities as Walvis Bay and is less frequently used. Walvis Bay on the other hand is the most important port and serves as both a commercial and fishing harbour. It has a well developed infrastructure with good road and rail links to the Namibian hinterland. The enclave furthermore facilitates most of the countries fishing activities as well as other marine related supporting industries. The problem is that the enclave and surrounding islands are claimed by South Africa as their territory in terms of an agreement with Britain after the second world war even though the enclave and islands are situated within Namibian geographical boundaries.(SEE MAP 2)

Namibian independence in March 1990 was part of an agreement between South Africa the U.N and five western powers. At the time it was decided(as a compromise to not further delay the independence process)that the Walvis Bay issue would be dealt with between a post independence Namibian government and South Africa. To date the issue still remains a matter of dispute although negotiations between the two parties have commenced and a joint administrative authority is to be implemented in the near future. As this was to be merely an interim measure a final solution to the dispute becomes a matter of urgency as the enclave and the islands remain of vital economic and strategic importance to Namibia. Furthermore continued uncertainty is not conducive

to continued good relations between the two countries whose economies and history are intricately linked.

The importance of discussing this issue is the fact that the continued claim to the enclave and the islands by South Africa makes a mockery and a farce of the extended EEZ jurisdiction granted to coastal states in terms of the Convention on the Law of the Sea. The result of this claim over the area has the effect in contemporary international law of cutting directly into the Namibian EEZ resulting in patches of the EEZ belonging to South Africa and patches to Namibia.(See Annex 2) This distortion of the EEZ consequently leads to numerous problems in the exercise of Namibia's rightful jurisdiction over the whole extent of the proclaimed EEZ. It furthermore leads to complex problems in law, administration and enforcement. The fisheries administration in Namibia is faced with the problem that it has to direct it's operations and administrative functions from the inland capital Windhoek and the less suitably situated port of Luderitz. Fishing activity in the port of Walvis Bay remains under the South African administration even though Namibian registered fishing vessels operate from Walvis Bay.(It is interesting to note that the Namibian ship registry is situated at Luderitz.) Effective control over it's fishing fleet by the Namibian fishing authorities is therefore compromised and consequently leads to higher administrative cost because of the distances involved. Furthermore enforcement, monitoring and surveillance of fishing activity in the EEZ is hereby complicated and illegal fishing activity made easier. If one considers the amount of recently reported illegal fishing activity, predominantly by the Spanish. A further complicating factor is the vastness of the sea area

to be covered by sea patrols and air surveillance. Fishermen fishing illegally in the territory can easily escape into those areas of the EEZ under South African jurisdiction and thus avoid capture when detected and pursued in the Namibian EEZ. The effectiveness and efficiency of monitoring, surveillance and inspection services is thus undermined.

The Namibian government has, since independence, started negotiations with South Africa for the return of Walvis Bay and the surrounding islands to Namibia. However the negotiations have been too slow and to date very little progress, if any at all, has been made. The main reason for the slow progress can be said to be the following:

1) The reluctance on the part of South Africa to release the territory for strategic military reasons. South Africa continues to maintain a high military presence in the Walvis Bay area and thus in Namibia with whose present government it has fought a long protracted war prior to independence.

2) Through its continued presence in the area, it exerts effective control over the countries economy by administering the only deep water commercial port and biggest fishing harbour in the territory.

From the aforementioned it is thus clear that there is great reluctance on the part of South Africa to relinquish the territory. South Africa therefore entered negotiations merely as a sign of good faith to appease the international community to lift sanctions but without any real commitment on its part and continues to use evasive tactics to sidetrack

the negotiations. It is difficult to understand South Africa's reluctance to return the islands surrounding Walvis Bay other than for their strategic value. The control which they exert from this position plays havoc with Namibia's management of its EEZ. The islands are totally uninhabited and have no real economic significance.

South Africa it is thus clear, cannot be trusted. It has developed through years of experience in defiance to world opinion, craftily refined delaying tactics and negotiating skills. It is thus no wonder Namibia at last realized its only option available was to take the issue to the international community. Namibian independence was only achieved through continuous international economic and political pressure, the high cost of the protracted war to South Africa and the changing internal political situation within South Africa. South Africa's white dominance is supported by military domination and dependence tactics . As long as the white minority government remain in power in Pretoria and the internal political situation remains unchanged and unstable, the Walvis Bay territorial issue will continue to be delayed by South Africa thereby retarding the economic development in Namibia.

The South Africa track record is clear. Its present regime will never willingly relinquish control over the Walvis Bay area. Negotiating with a former colonial counterpart is not likely to bring about a change of heart in the South Africa white colonial mentality. It will therefore continue to stall real progress in negotiations by creating all sorts of linkages especially of an economic nature given

the Namibian dependence on imports of agricultural and manufactured goods from South Africa.

Taking the Walvis Bay area issue to the international community seems to be both politically wise and economically prudent. As isolation tactics and internal economic pressure is largely responsible for the independence of Namibia and the recent changes in South Africa. By challenging South Africa, bona fide negotiations of the issues within an international forum may lend greater credibility to the Namibian claim to the territory. Such a change in strategy may accelerate the chance of real progress in negotiations and force South Africa to commit themselves to resolving the issue.

Furthermore, South Africa's efforts to become more amenable to world opinion and their resolve to rejoin international organizations such as the U.N. can be used effectively to challenge its bona fides by exposing its noncommittal attitude on to these important negotiations within the international political arena. South Africa should be pressurized to accept a settlement of the dispute through impartial arbitration, mediation or conciliation. If however, if South Africa cannot be persuaded to agree to such international dispute settlement methods then Namibia should officially charge South Africa with illegal occupation of part of its territory at the International Court of Justice. It should thus challenge the South African claim of jurisdiction. Although the issue was already decided by the World Court of Justice in 1971, it related to the illegal occupation of the territory as a whole and not the Walvis Bay area specifically. Re-opening the issue by formally re-

charging South Africa at the World Court of Justice, will give international prominence and exposure to the issue and hopefully commit South Africa to stop its hide and seek tactics and make its position clear. Past experience has however shown that South Africa unfairly manipulates all its Southern African neighbors by exerting economic pressures upon those dependent upon the South Africa economy. South Africa punishes political dissension by economic means. This should be constantly borne in mind when dealing with that country and Namibia should be well advised to be cautious and constantly alert to South Africa's tactics. Zimbabwe is a good example of a country where South Africa uses economic sanctions to extract political conformity.

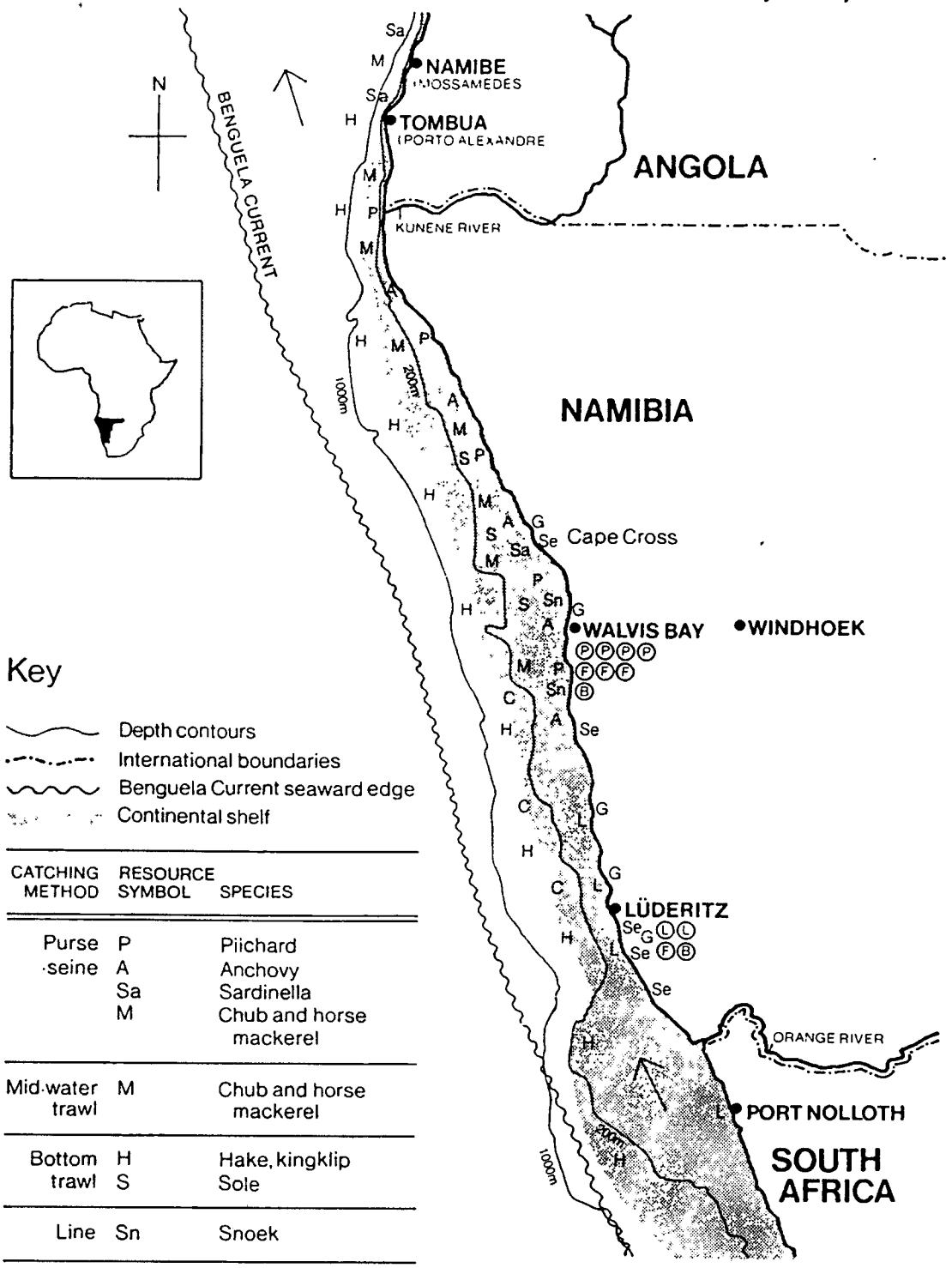
Lastly, Namibia should in its own self interest continue to support a negotiated political settlement in South Africa as the cost of protracted violence and civil strife will be disastrous not only to that country as such but to the whole Southern African region as a whole. I am of the opinion that a political settlement in South Africa and a changed regime in Pretoria will be most advantageous to a successful resolve of the Walvis Bay issue. Continues political and financial support for the major political factors in South Africa politics can be most beneficial to Namibia as the African National Congress has already officially vowed that Walvis Bay will be returned to Namibia should it come to power in South Africa. Walvis Bay's return to Namibia therefore remains a high priority in order for Namibia to achieve its long term fisheries development objectives.

ENDNOTES.

CHAPTER 6.

(1) W.R Edeson. p. 22-23 para. 3.

## Map 1. The Namibian Fishery: Resources and Capacity




### Key

- Depth contours
- International boundaries
- Benguela Current seaward edge
- Continental shelf

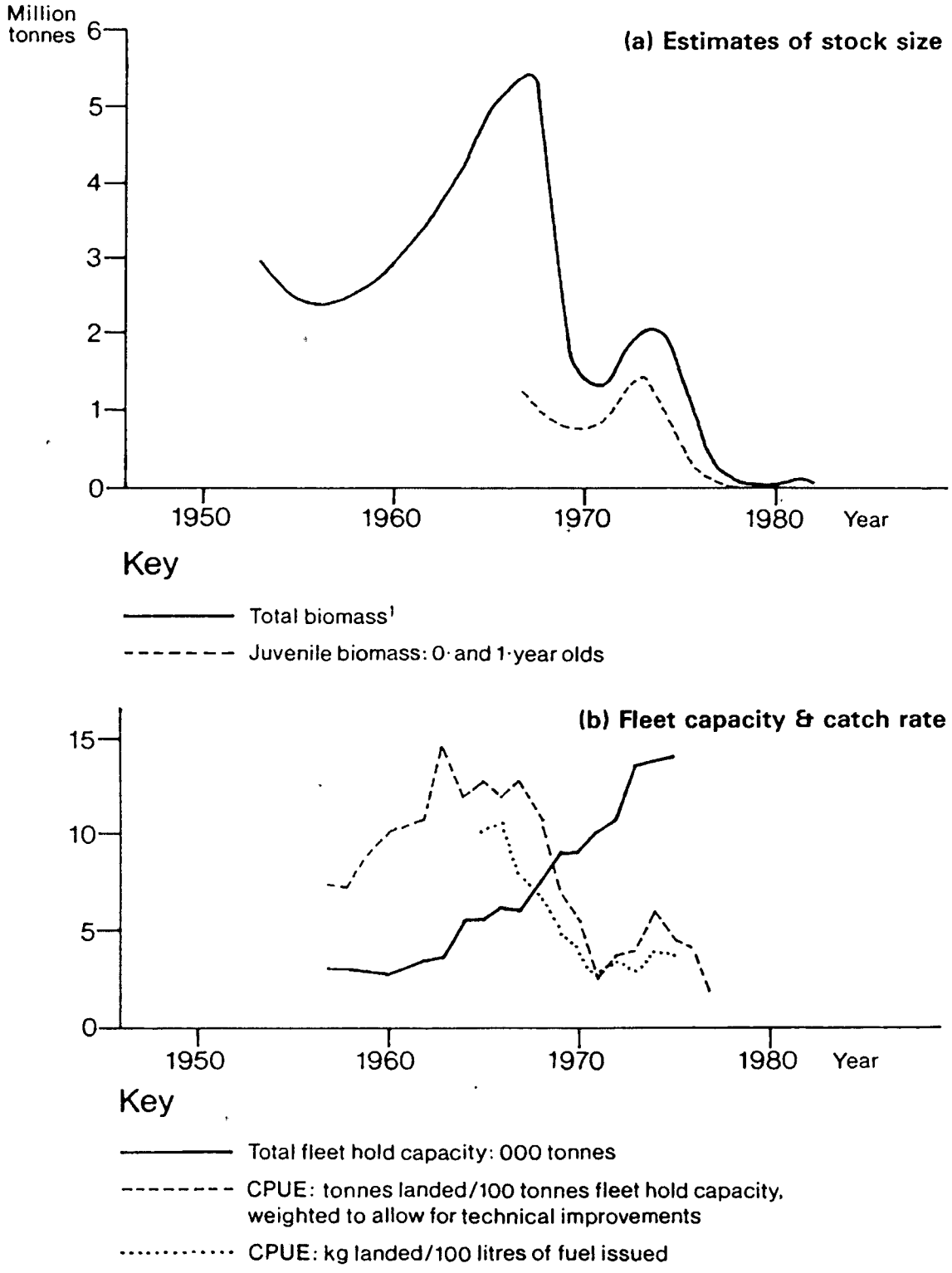
| CATCHING METHOD | RESOURCE SYMBOL | SPECIES |
|---|---|---|
| Purse seine | P | Pilchard |
| | A | Anchovy |
| | Sa | Sardinella |
| | M | Chub and horse mackerel |
| Mid-water trawl | M | Chub and horse mackerel |
| Bottom trawl | H | Hake, kingklip |
| | S | Sole |
| Line | Sn | Snoek |
| Trap and ring-net | L | Rock lobster |
| | C | Crab |
| Cull | Se | Seal |
| Harvest | G | Bird guano |

**Operational factories (1982)**

- Ⓟ Pelagic fish processing (tinned, meal, oil, salted)
- Ⓕ White fish freezing and processing
- Ⓛ Rock lobster and crab processing
- Ⓑ Boat building and repairing

SOURCE : MOORSOM. 1984.

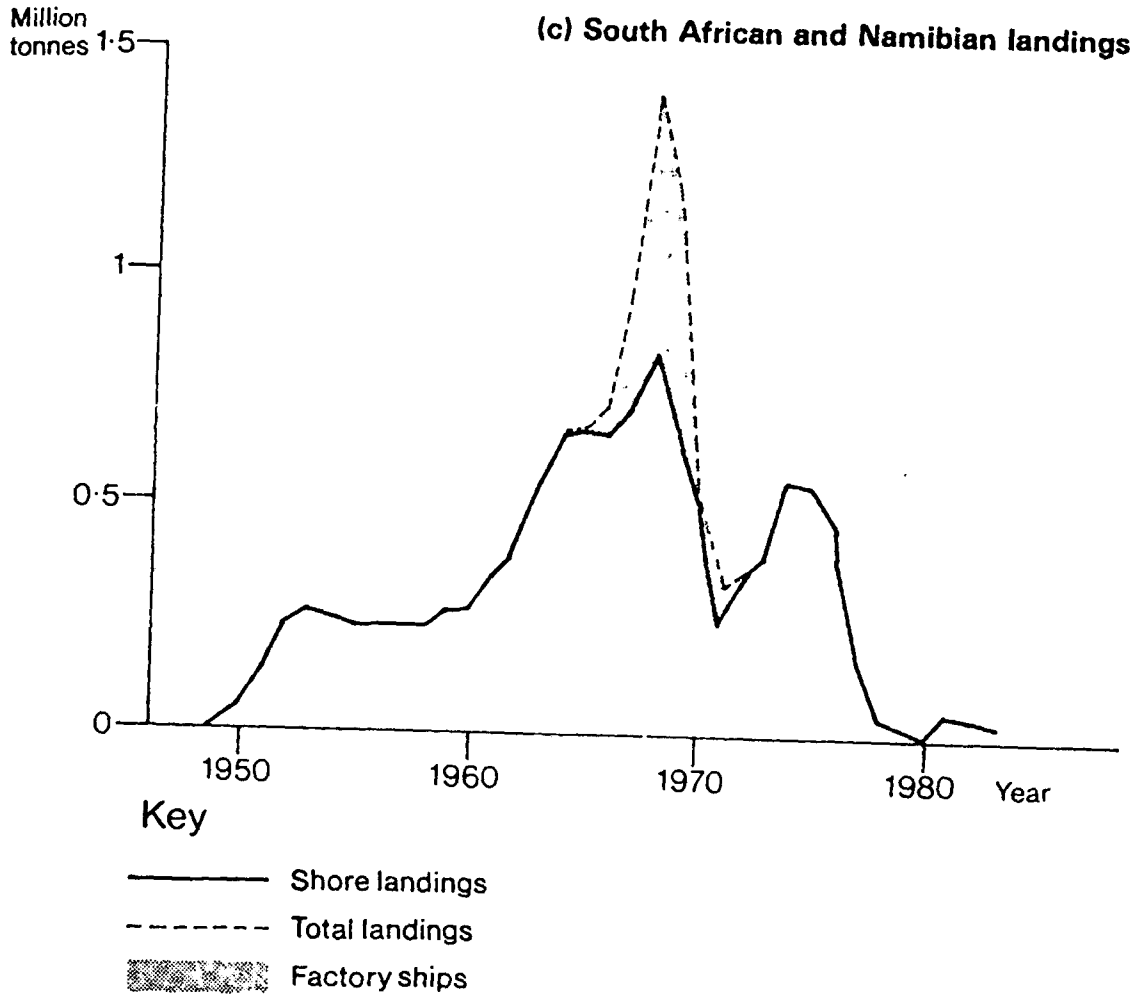
## Fig 3. The Collapse of the Pilchard




*Notes:* 1. Pre-1967 estimates vary; the values given here approximate the trend of several sources. Earlier assessments put the peak 1967 biomass at nearer 4m tonnes. Natural fishing mortality is taken throughout as M = 0.5.

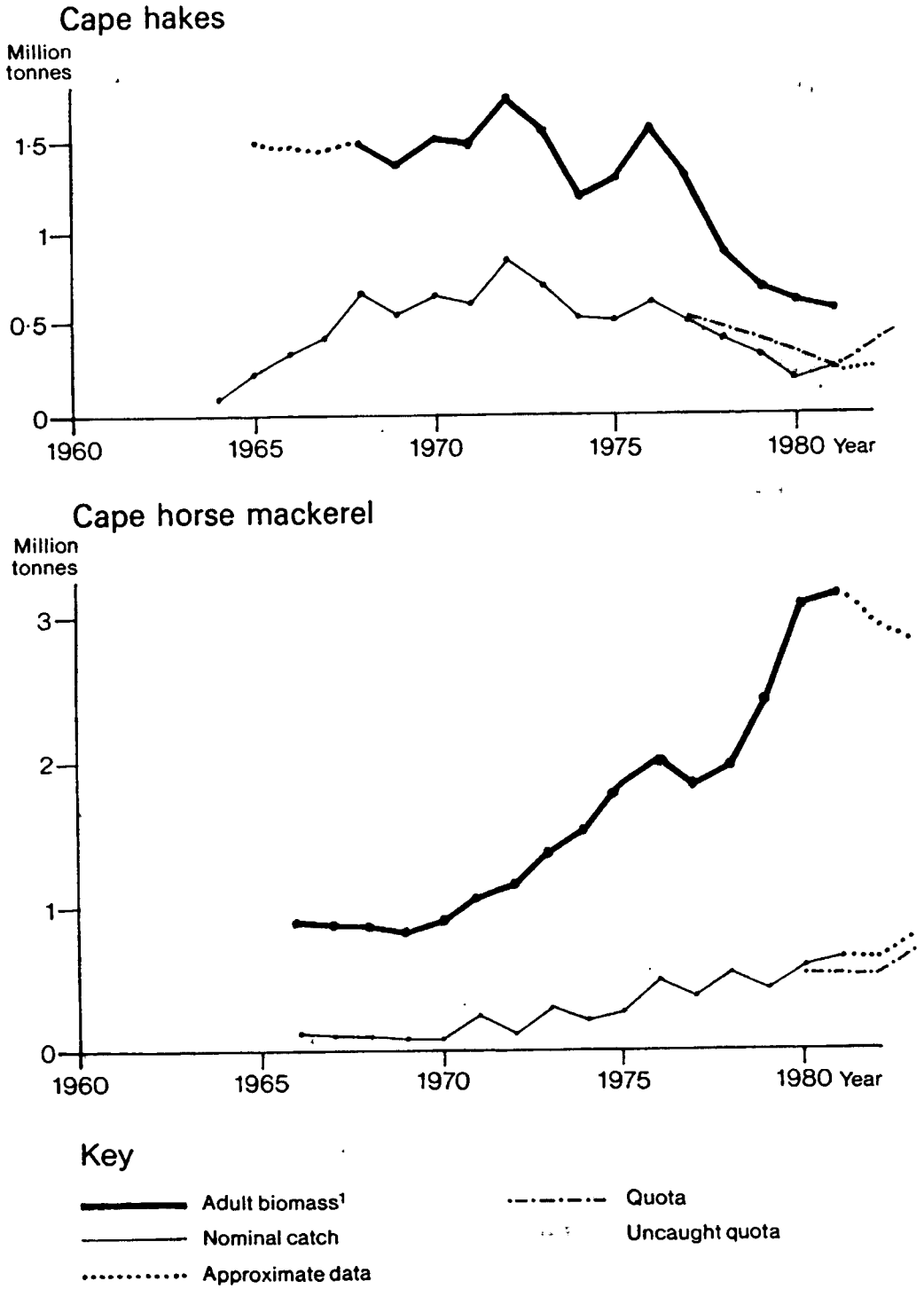
*Main sources:* Thomas 1982, table 9; Troadec et al 1980 p.266f, table 7 & fig 1; Newman 1977, tables 18-19; Le Clus & Thomas 1980, table 8; Schülein et al 1978; Fishing Industry Handbooks; SFRI Annual Reports.

SOURCE : MOORSOM. 1984.


(c) South African and Namibian landings
Million tonnes
1·5
1
0·5
0
1950
1960
1970
1980
Year
Key
Shore landings
Total landings
Factory ships

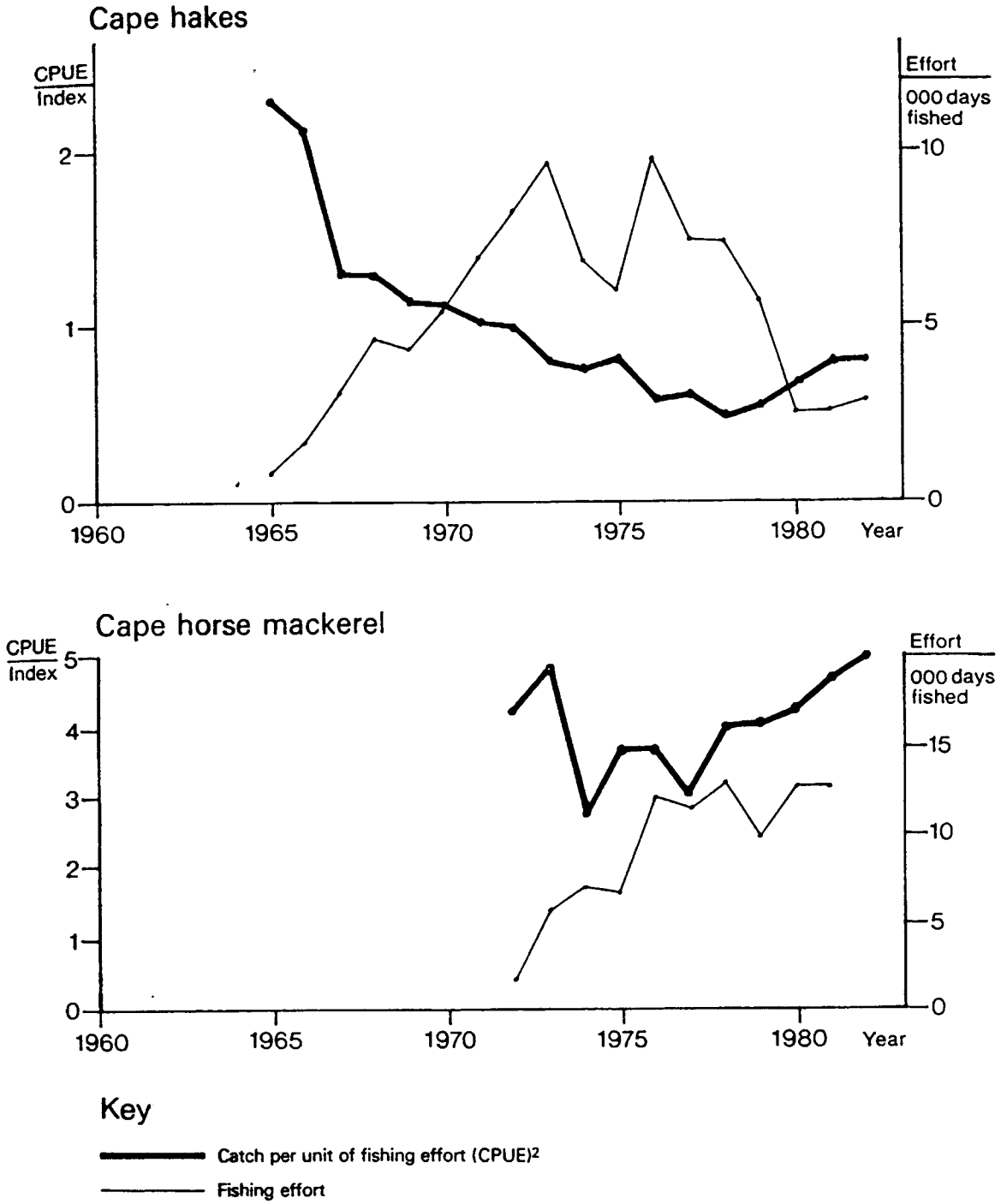
## Fig 4. The Offshore Fish Stocks

### (a) Population, catches & quotas




SOURCE : MOORSOM. 1984.

**(b) Fishing effort & catch rate**



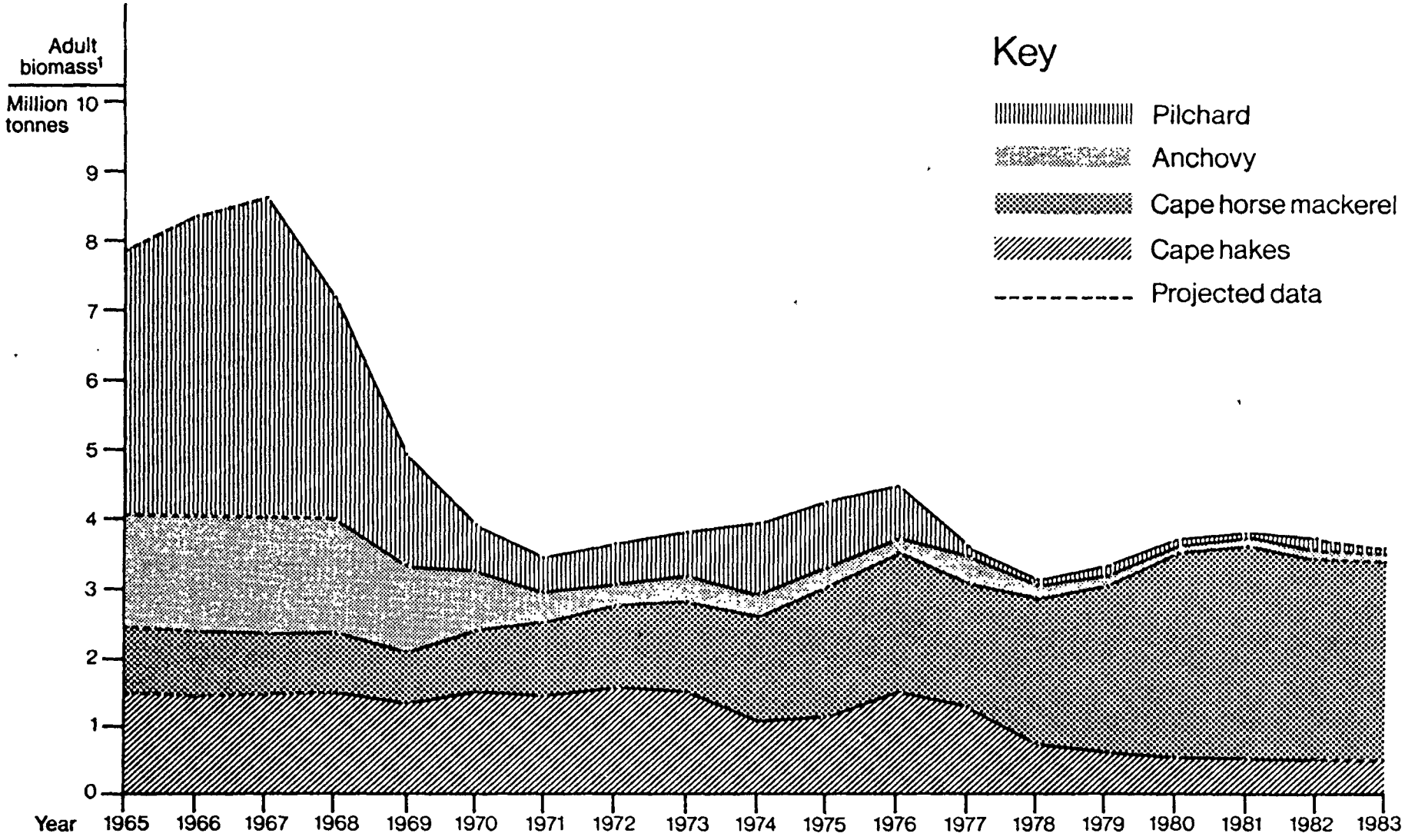

*Notes*

1. Adult biomass defined as hake aged 3 to 7 years in ICSEAF divisions 1.3 and 1.4, and 3 to 9 years in division 1.5, plus horse mackerel aged 2 and over.

2. For hake, the unweighted mean of the separate ratios for divisions 1.3-4 and 1.5, and therefore approximate.

*Sources:* ICSEAF *Proc. & Rep.* and *STOCK* 1982; Table A4.

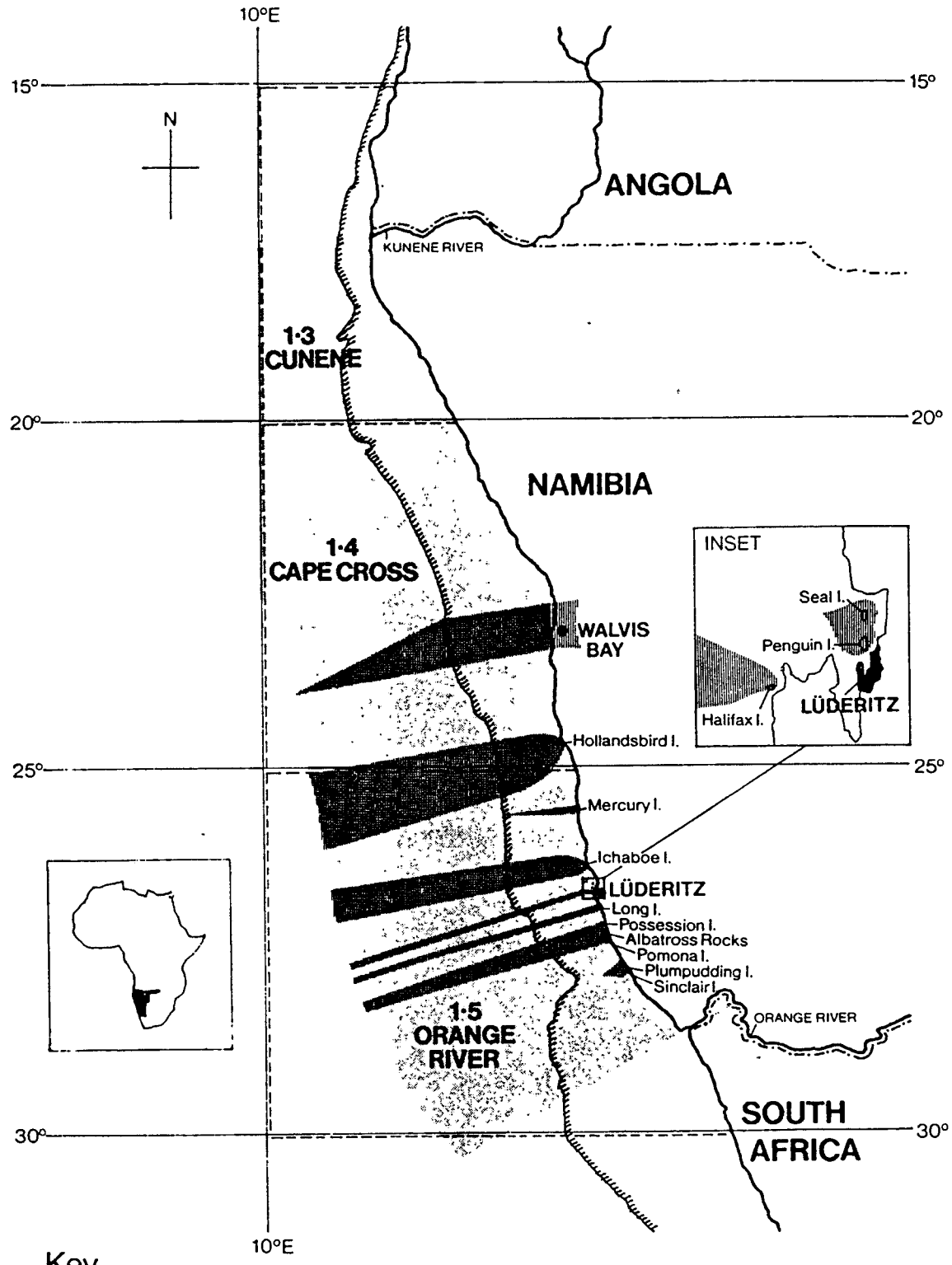
## Fig 5. Impact of Fishing on Namibia's Major Fish Stocks 1965-83




*Notes:*

1. Hake aged 3 years and over, horse mackerel and pilchard 2 years and over, anchovy one year and over. Horse mackerel excludes the Cunene sub-species which is significant in the far north but for which there are no data. Values for 1982-3 are projections based on age structure.

## Map 2. Control of Namibia's Offshore Fishing Zone




Key

**1·4 CAPE CROSS** ICSEAF Division

Seal I. Claimed by SA

**WALVIS BAY** Towns

ORANGE RIVER Rivers

Boundaries of ICSEAF Divisions

Namibian 370km fishing zone

Territory & fishing zone claimed by SA

Seaward limit of main fishing grounds (depth=1000m)

International boundary

SOURCE : MOORSOM. 1984.

## ANNEX VI

**FUTURE POTENTIAL OF NAMIBIA'S FISH RESOURCES.**

This represents a forecast of probable yields of Namibian fish resources in the short, medium and long term and only represent indicators of probable levels as variability is a well known feature of marine fish stocks. Therefore the figures of annual potentials presented below should be considered as guidelines only and future TAC's should be regarded as guidelines for future exploitation only. Future actual TAC's should however be based and decided on stock assessments and scientific research data relating to the species under question and economic factors in the respective industry.

**SHORT TERM. ( 1-5 years )**

Efficient restrictive measures of fishery regulations to improve conditions of depleted stocks are to be applied. Indicators of annualTAC's and probable landings for the by-catch species may be( 1000 t ):

| | |
|---|---|
| HAKE | 60-150 |
| HORSE MACKEREL | 450 |
| CHUB MACKEREL | 20 |
| PILCHARD | 0 or 40-50 for canning |
| ANCHOVY | 0 increasing to 100 |
| SNOEK | 10 |
| KINGKLIP AND MONKFISH | 5 |
| SQUIDS | 3 |
| DEEP WATER CRABS | 6 |
| ROCK LOBSTERS | 0.5 |

**MEDIUM - TERM (5 - 10 years)**

During five years of restrictions, the hake stocks will be recovering and the TAC's can be increased gradually. The pilchard stock may be sufficiently recovered to allow a small fishery for canning. Horse mackerel may decrease as other stocks increase. Indicators of probable medium-term yields may be ( 1000 tons ):

| | |
|---|---|
| HAKE | 200 - 300 |
| HORSE MACKEREL | 400 - 300 |
| CHUB MACKEREL | 30 |
| PILCHARD | 50 - 100 |
| ANCHOVY | 100 |
| SNOEK | 20 |
| KINGKLIP AND MONKFISH | 10 |
| SQUIDS | 5 - 10 |
| DEEP WATER CRABS | 6 |
| ROCK LOBSTER | 1 - 2 |

**LONG - TERM**

Depleted and overfished stocks have recovered. Considerable fluctuations in stock conditions will occur, especially for anchovy and pilchard, and TAC's must be adjusted accordingly. The approximate long term yields are likely to be ( 1000 tons ):

| | |
|---|---|
| HAKE | 300 - 350 |
| HORSE MACKEREL | 300 |
| CHUB MACKEREL | 40 |
| PILCHARD | 300 - 500 |
| ANCHOVY | 100 - 200 |
| SNOEK | 20 |
| KINGKLIP AND MONKFISH | 10 - 15 |
| SQUIDS | 10 |
| DEEP SEA CRABS | 6 |
| ROCK LOBSTER | 2 - 3 |

**SOURCE: GOVERNMENT WHITE PAPER ON NATIONAL FISHERIES POLICY FOR THE REPUBLIC OF NAMIBIA. WINDHOEK AUGUST 1991.**

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